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ABSTRACT

This first interim report of the National Assessment of Vocational Education is intended to provide Congress with information that has emerged from some of the research conducted to date and to describe all the research projects underway. The report has two parts. The first part discusses trends in vocational education and issues concerning vocational education for disadvantaged persons. The second part contains profiles of the studies being conducted in each area of the study plan. Chapter 1 presents a brief statistical portrait of enrollment in vocational education at the secondary level as of 1982 and some preliminary evidence on change since then in enrollments. Preliminary findings show that nearly all students take some vocational education, but overall enrollment in vocational education courses appears to be declining. Chapter 2 (1) discusses the problems various disadvantaged populations have with vocational education services at the secondary and postsecondary levels; (2) describes the Perkins Act provisions to serve disadvantaged persons; and (3) identifies, on the basis of some preliminary field studies, how states and localities are responding to these provisions. Chapters 3 through 7 are profiles of the projects to be conducted in five broad research areas identified in the study plan. A synopsis of the Perkins Act is appended. No findings or recommendations are included in this interim report. (KC)

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INTRODUCTION

As required by section 403 of the Carl D. Perkins Vocational Education Act, the first interim report of the National Assessment of Vocational Education is hereby submitted to Congress.[1]

BACKGROUND OF THE NATIONAL ASSESSMENT

Section 403 mandates that the Department of Education conduct a National Assessment of Vocational Education that includes "descriptions and evaluations" in nine areas:

1. Vocational education services being delivered to special populations.
2. The act's effects in helping the nation's vocational education system to modernize and meet changing needs of the workplace.
3. The resources needed to meet the nation's job training needs.
4. The impact of vocational programs on the academic skills and employment opportunities of students.
5. The coordination of vocational education programs with employment and training and economic development activities of the states.
6. The coordination of vocational education programs and services for disadvantaged and handicapped persons.
7. The skills and competencies developed by states to assess their vocational programs.
8. The effectiveness of vocational education programs for persons with limited proficiency in English.

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[1]Copies of this interim report are available by writing to the National Assessment of Vocational Education, U.S. Department of Education, 400 Maryland Ave., S.W., Room 3141, Washington, DC 20202.

9. The effectiveness of the federal bilingual vocational training program.

To carry out this mandate, the Department of Education established the National Assessment of Vocational Education (referred to in this report as the National Assessment, or NAVE) to conduct "independent studies and analysis." The National Assessment will submit a final report to Congress in January 1989.

In January 1987, the National Assessment submitted to Congress a study plan identifying five broad research areas to deal with the topics outlined by Congress:

1. Implementation of the Perkins Act.
2. Access of special populations to vocational education.
3. Status of vocational education in secondary schools.
4. Status of postsecondary vocational education.
5. Skills training and the economy.

Each of these research areas is described in the study plan. For reference purposes, a summary of the major provisions of the Perkins Act is included in an appendix at the end of this report.

OVERVIEW OF THE REPORT

The purposes of this interim report are to provide Congress with information that has emerged from some of the research conducted to date and describe all the research projects underway. The intent is to begin constructing a framework for the discussion of federal policy in vocational education that lies ahead. This report has two parts. The first part discusses trends in vocational education and issues concerning vocational education for disadvantaged persons. The second part contains profiles of the studies being conducted in each area of the study plan.

Chapter 1, "Participation in High School Vocational Education," presents a brief statistical portrait of enrollment in vocational education at the secondary level as of 1982 and some preliminary evidence on change since then in enrollments. Contrary to the notion of distinct academic,

general, and vocational tracks in high schools, nearly all students take some vocational education. More then 60 percent of high school vocational education is occupationally specific. Students who take more vocational education in high school also appear to take more credits in total before graduating so that the credits they complete in English, mathematics and science, and other subjects are not greatly affected. But overall enrollment in vocational education courses appears to be declining in response to a variety of forces at the state and local levels. The effects appear to be greater on certain components of the secondary school system, such as area vocational schools, than on others.

Chapter 2, "Disadvantaged Persons and Vocational Education Policy," (1) discusses the problems various disadvantaged populations have with vocational education services at the secondary and postsecondary levels; (2) describes Perkins Act provisions to serve disadvantaged persons; and (3) identifies, on the basis of some preliminary field studies, how states and localities are responding to these provisions. Among the special populations assisted through the Perkins Act, the disadvantaged receive the largest set-aside of funds. The prime issue is whether the provisions of the Perkins Act are directing resources to the most important needs of disadvantaged students at the secondary and postsecondary levels.

Chapters 3 through 7 are profiles of the projects to be conducted in five broad research areas identified in the study plan. Each chapter begins by summarizing the basic issues in its area and relating them to the study mandate, and then proceeds to describe the full range of issues involved and the research projects already under way or soon to be initiated.

This document is a progress report intended only to further define the issues and present some basic descriptive data. No findings or recommendations of the National Assessment of Vocational Education are included. Findings and recommendations will be presented in the final report to Congress, due January 1989.

The second interim report of the National Assessment required by the study mandate will be devoted to results from research on the outcomes of vocational education at the secondary and postsecondary levels, together with additional information beyond what is included in this report on the

extent of participation in vocational education, trends in enrollment, and services being provided to special populations.

An external advisory panel of distinguished educators and vocational educators, public policy analysts, administrators, and research experts met December 14-15, 1987, and reviewed this interim report. The panel will also several times in the future at important points in the National Assessment. Members of the Advisory Panel are listed in the appendix.

This report was written by the staff of the National Assessment. Robert Meyer and Lana Muraskin wrote chapter 1. Lana Muraskin wrote chapter 2. Chapters 3 through 7 were written by the entire staff--David Goodwin, Robert Meyer, Lana Muraskin, Dorothy Shuler, and John Wirt. Secretarial assistance was provided by Angela Fields and Karen Wilmer.

APPENDIX

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Part I

PARTICIPATION IN HIGH SCHOOL VOCATIONAL EDUCATION
DISADVANTAGED PERSONS AND FEDERAL VOCATIONAL EVALUATION POLICY

Chapter 1

PARTICIPATION IN HIGH SCHOOL VOCATIONAL EDUCATION

This chapter presents two analyses of secondary school enrollments in vocational education and other subject areas. The first analysis provides a detailed portrait of vocational enrollment for the high school class of 1982. The portrait is derived from high school transcripts for a nationally representative sample of approximately 9,000 high school graduates, collected as a part of the High School and Beyond Survey (HS&B). These data are currently the most up-to-date source of course enrollment information at the national level. The second analysis describes emerging patterns of change in enrollments since 1982, based primarily on two state-level studies that have been done by others and some local case studies conducted as part of the National Assessment.

The portrait of vocational education that emerges in the first part of this chapter differs significantly from earlier reports that were based either on program participation data or on aggregate state enrollment data (for example, Vocational Education Data System--VEDS--or earlier federal enrollment data). In part, the difference stems from the fact that high school transcripts provide sufficient detail to distinguish among different types of vocational education, ranging from very general courses such as Typing I to advanced specific courses such as Carpentry III. Program participation data, which classify students as academic, general, or vocational students, are inherently incapable of making these distinctions and, of course, provide no information on the degree of participation in vocational education.

In addition, because transcripts document the entire high school experience, grades nine through twelve, we have been able to analyze students' patterns of enrollment over four years, and thus, for example, to assess the extent to which students complete a sequence of vocational instruction in a single subject area. Annual aggregate enrollment data such as VEDS provide a snapshot of enrollments in a single year and therefore provide no information concerning the pattern or degree of student participation in

vocational education.[1] Since these characteristics are important for a thorough description and evaluation of vocational education, most, if not all, analyses conducted by the National Assessment will rely on data sets containing transcripts or equivalent information.[2] Appendix A, at the end of this chapter, provides a more detailed criticism of program participation data.

The plan for this chapter is as follows. The first section summarizes a new Secondary School Course Taxonomy(the SST) that was developed by the National Assessment to provide a policy-relevant taxonomy of all academic, vocational, and other high school courses. The second section presents enrollment data for the alternative types of vocational instruction defined by the SST. This analysis, which is based on transcript data from the HS&B Survey,[3,4] is followed by an examination of who participates in vocational education. The short answer is nearly everyone: 97 percent of all 1982 high school graduates participated in at least one vocational course during high school. The third and fourth sections provide a brief analysis of alternative patterns of vocational enrollment and an integrated analysis of the links between enrollment in vocational education and academic subjects (such as mathematics and science).

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[1]An additional problem with VEDS and earlier federal enrollment data is that these data were collected by states using procedures and definitions that were often inconsistent. The transcripts used in our analysis were coded using a national course classification scheme (the Classification of Secondary School Courses).

[2]The project profiles in part II describe several studies that will draw on transcript data from the high school classes of 1960, 1964, 1969, 1972, 1976 to 1981, 1982, and 1987. Transcript data for the class of 1987 are currently being collected in the High School Transcript Study for the Class of 1987.

[3]Most of the data presented in this chapter were taken from a report prepared for the National Assessment by E. Gareth Hoachlander, Cynthia L. Brown, and John Tuma of MPR Associates, Inc., Berkeley, California. Additional data were prepared by staff of Decision Resources Corporation and NAVE.

[4]The High School and Beyond transcript data document all courses taken by Students in grades 9 through 12, including courses taken at area vocational/technical centers and other institutions, and courses taken at high schools by transfer students.

The chapter closes with a discussion of available evidence concerning trends in vocational enrollments since 1982 and the policy implications of these trends. More definitive information on recent enrollments in vocational and nonvocational coursework will be available this summer at the conclusion of the High School Transcript Survey for the Class of 1987, sponsored by the National Assessment with the Office of Special Education and Rehabilitation Services (OSERS), the National Science Foundation, and the Center for Educational Statistics (CES). An additional description of this project is presented in chapter 4 of this report.

A CLASSIFICATION OF VOCATIONAL COURSES

To describe the high school curriculum in an informative but concise way, it was necessary to develop a classification scheme that differentiates and groups courses by curriculum area, subject, field, and level. The SST, which was developed for this purpose, appears in appendix B at the end of this chapter.[5] This chapter uses the SST to provide a brief analysis of secondary vocational education. As discussed in the project profiles, subsequent full-length reports will use the SST to develop a consistent, historical analysis of the high school curriculum.

The SST comprises four principal curriculum areas: academic, vocational, personal/other, and special education. The academic curriculum is divided into six subject areas: mathematics, science, English, social studies, fine arts (music, art, drama, dance, and crafts), and foreign languages. These subjects are further subdivided by fields such as social science, biology, chemistry, and physics and, where appropriate, levels such as basic, regular, and advanced.

The vocational curriculum comprises three major divisions. The first, consumer and homemaking education (C&HE), differs from the other two areas in that its courses are generally intended to prepare students for roles

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[5]The SST was developed for the National Assessment by Cynthia L. Brown, E. Gareth Hoachlander, and Robert H. Meyer, with the assistance of National Assessment staff, staff of the NAVE Support Center (VESAC), and an external expert review panel. The SST will be published as a report of the National Assessment.

outside the paid labor market. The second, general labor market preparation (GLMP), consists of a set of courses or instructional areas that provide skills that are related to employment but are not specific to a particular occupation. This division includes Typing I, Introductory Industrial, Work Experience/Career Exploration, and General Skills, such as Business Math. The third, specific labor market preparation (SLMP), is divided into seven vocational subjects: agriculture and renewable resources, business, marketing, health, occupational home economics, trade and industrial, and technical and communications. The business and trade and industrial subjects are further separated into business management and business support, and construction trades, mechanics and repairers, precision production (i.e., drafting, electronics, machine shop, graphic arts, and woodworking), and transportation.

The eleven specific labor market subjects and C&HE are all divided as follows: first course in a sequence (e.g., Carpentry I), second or later course in a sequence, and nonsequential courses (courses that could not unambiguously be identified as belonging to a sequence of specific occupational training on the basis of the course title). These distinctions in subject and level make it possible to identify training patterns that reflect a progressive sequence of training, as opposed to exploration of multiple-subject areas at an introductory level.

The personal/other curriculum comprises a set of instructional areas generally intended for personal development, including health, physical education, and religion classes (which are taken mostly by private school students).

Special education courses accounted for a small proportion of courses in the HS&B transcript data file, largely because special education students tended to be excluded from the sample. Because little is known about the enrollment patterns of special education students, a large sample of special education students will be included in the class of 1987 transcript study described on page 1-3. The project profiles in part II discuss the National Assessment's proposed research in this area.

SECONDARY SCHOOL VOCATIONAL ENROLLMENT

Evidence from the high school class of 1982 indicates that enrollment in high school vocational education is nearly universal: 97 percent of the high school graduates from this cohort enrolled in at least one vocational course in grades nine through twelve (see table 1-1). Enrollments ranged from as little as half a credit (a one-period, one-semester course) to 8 credits or more.[6] Half of all students took 4 or more credits. Clearly, enrollment in vocational education is a matter of degree, not an either-or proposition.

Vocational enrollments accounted for 20 percent of the total coursework taken by the graduates of the high school class of 1982, almost 4-1/2 full-year courses, on average. The great majority of this coursework was taken during the eleventh and twelfth grades. As table 1-2 indicates, specific labor market preparation accounted for 63 percent of all vocational coursework. General labor market courses and C&HE accounted for the remaining 22 and 15 percent, respectively.

The magnitude of special labor market training may surprise people who think of high school vocational education as consisting primarily of woodshop and other introductory industrial arts courses. First courses in a sequence of specific labor market preparation were the most prevalent type of training, representing nearly 40 percent of all vocational education. However, second or later courses in a sequence of specific labor market preparation accounted for nearly half that amount. Nonsequential courses accounted for only 5 percent of all vocational coursework.

Table 1-3 lists vocational enrollments by detailed subject areas. Typing I, a course taken by 65 percent of all high school graduates, accounted for more than half of the credits in the general labor market division.[7] The vocational curriculum, however, was dominated by three

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[6]A one credit course is defined as a course that meets 5 periods (50 to 60 minutes) per week over the entire school year. Accordingly, courses that meet for two periods each day for a full year earn 2 credits and courses that meet once a day for a half-year (one semester) earn 1/2 credit.

[7]Introductory industrial arts, work experience/career exploration, and general skills accounted for an additional 0.42 credits.

Tables 1-1. The Degree of Participation in High School Vocational Education, 1982

Vocational Credits Taken	Percentage of Students
0.0	3.0
0.5	4.3
1.0	6.8
2.0	13.2
3.0	13.4
4.0	12.3
5.0	10.8
6.0	11.3
7.0	8.3
8.0 or more	16.5
	100.0

Source: High School and Beyond Sophmore Cohort Transcript File, Center for Educational Statistics, U.S. Department of Education.
Note: All tables in this chapter are based on 1982 data and the columns may not add to totals because of rounding.

Table 1-2. Average Enrollment in Major Types of Vocational Education, 1982

Vocational Subjects	Average Enrollment (credits)	Share of All Vocational Education (percentage)
Consumer and Homemaking Education (C&HE)	0.56	22.3
General Labor Market Preparation (GLMP)	0.97	22.3
Specific Labor Market Preparation (SLMP)	2.74	63.0
First course	1.66	38.2
Second course or later	0.84	19.3
Nonsequential course	0.24	5.5
All Vocational Education	4.35	100.0
All High School Coursework	21.52	N.A.

Source: See Table 1-1. N.A. Not applicable.

Table 1-3.
Average Enrollment in Vocational Subjects

Vocational Subjects	Average Enrollment (credits)	Share of All Vocational Education (percentage)
Consumer and Homemaking Education	0.65	14.9
General Labor Market Preparation	0.97	22.3
Typing I	0.55	12.6
Introductory Industrial	0.15	3.4
Work Experience/Career Exploration	0.16	
	3.7	
General Skills	0.11	2.5
Specific Labor Market Preparation	2.74	63.0
Agriculture	0.20	4.6
Business	1.01	23.2
Business Management	0.22	5.1
Business Support	0.79	18.2
Marketing and Distribution	0.15	3.4
Health	0.04	0.9
Occupational Home Economics	0.16	3.7
Trade and Industrial	0.93	21.4
Construction Trades	0.12	2.8
Mechanics and Repairers	0.22	5.1
Precision Production	0.59	13.6
Transportation	--[a]	--[b]
Technical and Communications	0.10	2.3
All Vocational Education	4.35	100.0

Source: See table 1-1.
a) Less than 0.005.
b) Less than 0.05.

subjects: business, trade and industry, and C&HE. Business, along with Typing I, accounted for more than a third of the vocational curriculum, and the three largest subject areas, plus Typing I, accounted for almost three-quarters of the curriculum. The rest of the curriculum consisted of several relatively small subject areas: agriculture (4.6 percent), marketing (3.4 percent), health (0.9 percent), occupational home economics (3.7 percent), and technical and communications (2.3 percent). Although individually small, these areas collectively were equal in size to consumer and homemaking education, representing 15 percent of all vocational coursework.

WHO TAKES VOCATIONAL EDUCATION?

Although participation in vocational education is nearly universal, there was substantial variation in the degree of participation in 1982, as indicated in table 1-4 (and table 1-1). Predictably, students who expected to go to work directly after completing high school rather than continuing their formal schooling exhibited the greatest demand for vocational training, enrolling in an average of 6.01 credits, almost 40 percent more than the average level of enrollment for all students. Surprisingly, students who planned to obtain as much as two or more years of training at a postsecondary vocational/technical institution enrolled in secondary vocational courses at much the same rate, 5.75 credits. Vocational enrollment was less, but still substantial, among persons who planned to obtain some college training, 4.58 credits. Students who planned to earn baccalaureate degrees or higher enrolled at essentially half the level that students with no postsecondary plans did. Although vocational education is often viewed as a program for nonacademic students, these data indicate that college-bound students accounted for almost half of all vocational enrollments. Appendix table C-1 breaks down these enrollment data into subjects and levels.[8]

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[8]College- and noncollege-bound students alike enrolled in Typing I, a course that is useful in a wide variety of settings. Enrollments in other subjects generally reflected the negative correlation between postsecondary educational plans and vocational enrollments. A notable exception was the technical and communications area, where participation was greatest

Table 1-4.
Vocational Enrollments by Postsecondary Educational Plans and Ability Quartile

Student Characteristics	Average Vocational Enrollment (credits)	Share of Total Vocational Enrollment (percentage)
Postsecondary Educational Plans		
None	6.01	24.6
Voc/Tech	5.75	26.9
Less Than B.A./B.S.	4.58	19.7
B.A./B.S.	3.20	17.6
Grad/Professional	2.54	11.1
		100.0
Ability Quartile		
Low	5.80	24.4
25%-50%	5.39	30.1
50%-75%	4.34	27.3
High	2.64	18.2
		100.0
All Students	4.35	100.0

Source: See table 1-1.

for college-bound students. Across all specific labor market courses, enrollment in second or later courses was proportionately lower for students with the highest educational ambitions.

As indicated in table 1-4 (and appendix table C-1), differences in vocational enrollments by ability level were somewhat less pronounced than the differences discussed earlier. Vocational enrollments were substantialfor all but the top-ability quartile, where enrollment dropped sharply to an average of 2-1/2 credits, as opposed to 5.8 credits for the low-ability quartile. The top half of the ability distribution accounted for 45 percent of all vocational enrollments. Evidently, secondary vocational education is attractive to both high- and low-ability students and college- and noncollege-bound youth.

Table 1-5 and appendix table C-2 present enrollment data by sex, race, and family income. Overall enrollments in vocational education were similar for both sexes and all racial groups other than Asians. Asians exhibited a very low rate of participation, consistent with their generally ambitious postsecondary educational plans. Given the general similarity of enrollment rates across racial groups, group representation in vocational education paralleled the distribution of students: white students accounted for 78.3 percent of all students in vocational courses while black and Hispanic students accounted for 13.2 and 6.4 percent, respectively.[9] Appendix table C-2 reports that the average mix of vocational enrollments was quite similar across racial groups. In fact, enrollment in advanced specific labor market courses was somewhat higher for American Indians and blacks.

Table 1-5 indicates that family income was negatively associated with enrollment in vocational education. A comparison of tables 1-4 and 1-5 suggests that family income is a less powerful predictor of vocational enrollment than either postsecondary educational plans or ability. The true link between family income and vocational enrollments, however, is

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[9]Tabulations that compare vocational enrollments by race for persons with comparable socioeconomic status might show a somewhat different picture. Comparisons that control for socioeconomic status are appropriate if one is interested in identifying the causal (or residual) effect of race on vocational enrollments. Such comparisons are best done within the context of a rigorous model of participation in vocational education. Research of this type is discussed in part II.

Table 1-5.
Average Enrollment and Share of Total Vocational Enrollment, by Sex, Race, and Family Income

	Average Vocational Enrollment (credits)	Share of Total Vocational Enrollment (percentage)
Sex		
Male	4.30	47.0
Female	4.41	53.0
		100.0
Race		
American Indian	4.94	1.3
Asian	2.99	0.9
Hispanic	4.54	6.4
Black	4.77	13.2
White	4.29	78.3
		100.0
Family Income		
Less than $15,000	5.12	24.7
$15,000-$25,000	4.64	30.8
$25,000-$40,000	4.16	30.6
More than $40,000	3.18	13.9
		100.0
All Students	4.35	

Source: See table 1-1.

almost certainly masked by the acknowledged inaccuracies of student-reported family income in the HS&B data file.[10]

In sharp contrast to the widespread similarity in vocational enrollments among different racial groups, table 1-6 documents great dissimilarity in the vocational enrollments by sex. Males predominated in introductory industrial, agricultural, and all trade and industrial subjects, and females predominated in C&HE, business support, health, and occupational home economics. Several areas, however, were relatively sex-integrated: typing I, career exploration, general labor market skills, business management, marketing, and technical/communications. These enrollment patterns broadly reflect the substantial sex segregation that exists in the labor market. Whether sex enrollment differentials in secondary vocational education have declined over time is an issue that will be addressed fully in the National Assessment's analysis of vocational enrollments over time.

It is important to note that the issue of sex enrollment differentials in vocational education is complex. The goal of equal, unrestricted access to high-quality vocational education is clearly important, and the Congress has consistently emphasized this goal in federal legislation. But unequal enrollments by themselves are not necessarily evidence of institutional barriers among male or female students to specific vocational programs. Such enrollments may stem from personal economic considerations or personal preferences, no doubt heavily influenced by societal norms. The project profiles in part II of this report describe a program of research designed to examine the factors that affect the participation of women in nontraditional vocational subjects and fields.[11]

RATES OF PROGRAM COMPLETION

As is evident from the previous tables, secondary vocational education serves a diverse clientele, ranging from students who will be ready to use

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[10]William B. Fetters, Peter S. Stowe, and Jeffery A. Owings, "Quality Responses of High School Students to Questionniare Items," Center for Educational Statistics, September 1984.

[11]NAVE research will also examine the consequences for women and men of participation in traditional and nontraditional vocational education.

Table 1-6.
Average Enrollment in Vocational Subjects by Sex

Vocational Subjects	Student Vocational Credits	
	Males	Females
Consumer and Homemaking Education	0.28	0.98
General Labor Market Preparation	0.90	1.03
Typing I	0.37	0.71
Introductory Industrial	0.28	0.03
Work Experience/Career Exploration	0.17	0.15
General Skills	0.08	0.14
Specific Labor Market Preparation	3.11	2.39
Agriculture	0.35	0.07
Business	0.49	1.48
Business Management	0.19	0.25
Business Support	0.30	1.23
Marketing and Distribution	0.14	0.16
Health	0.02	0.06
Occupational Home Economics	0.04	0.27
Trade and Industrial	1.76	0.18
Construction Trades	0.24	0.01
Mechanics and Repairers	0.44	0.01
Precision Production	1.07	0.16
Transportation	0.01	0.00
Technical and Communications	0.12	0.08
All Vocational Education	4.30	4.41

Source: See table 1-1.

their training in jobs immediately after finishing high school to students who will pursue various levels of postsecondary schooling. Each group may use vocational education for somewhat different purposes and in somewhat different ways. A completed program of vocational training would presumably be most valued by those students who have no postsecondary educational plans. Other students may have the opportunity to extend and complete a vocational program that was begun but not concluded in high school.

Table 1-7 provides an approximate method of assessing the degree of program completion among college- and noncollege-bound students. Using the criteria that a program completion is defined by more than 3 vocational credits in a single, primary, specific labor market subject, 39.0 percent of persons with no postsecondary plans and 38.4 percent of persons with vocational/technical plans took enough primary, specific coursework to qualify as completing a program. As expected, the statistics for persons with plans for some college work, baccalaureate plans, and graduate or professional plans were substantially lower, 22.2, 9.5, and 8.1 percent, respectively. The nature of the link between secondary and postsecondary vocational education among the college-bound population will be examined in subsequent NAVE research. An important question is the extent to which college students follow up their secondary vocational training with related or complementary postsecondary training.

The results reported in table 1-7 are affected significantly by the fact that vocational coursework is limited to specific labor market coursework in each student's primary (or largest) subject area. If all specific labor market coursework is included (that is, both primary and nonprimary coursework), the share of students with no postsecondary plans who took more than 3 vocational credits rises from 39 to 55 percent. This implies that these persons took vocational coursework in more than one specific labor market subject (in addition to any general labor market coursework). Whether this behavior is motivated by the desire to explore multiple careers or has other motivations is a topic that NAVE research will investigate.

Table 1-7.
Completion of Specific Labor Market Courses in Primary Subject, by Postsecondary Educational Plans

Specific Labor Market Preparation (credits)	Postsecondary Educational Plans (percentage) None	Vocational/ Technical	Less Than B.A./B.S.	B.A./ B.S.	Graduate/ Professional
0	8.0	6.8	13.0	22.1	30.6
1	17.8	20.2	26.9	36.7	37.1
2	18.7	19.2	22.8	19.0	16.5
3	16.5	15.4	15.1	12.7	7.7
4	12.4	13.9	9.0	4.7	4.6
5 or more	26.6	24.5	13.2	4.8	3.8
4 or more	39.0	38.4	22.2	9.5	8.1
Total	100.0	100.0	100.0	100.0	100.0

Source: See table 1.1.

Table 1-8.
Average Enrollments in Major Subjects by Post Secondary Educational Plans

	All Students	None	Voc Tech	Less than B.S./B.A	B.S./ B.A.	Graduate Professional
Vocational Education	4.35	6.01	5.75	4.58	3.20	2.54
Academic	14.41	11.94	12.52	14.04	16.05	17.06
Mathematics	2.61	1.92	2.06	2.49	3.11	3.33
Science	2.20	1.65	1.75	2.05	2.55	2.92
English	3.91	3.81	3.77	3.91	4.00	4.07
Social Studies	3.20	3.00	3.12	3.23	3.29	3.35
Fine Arts	1.42	1.24	1.37	1.39	1.57	1.47
Foreign Languages	1.06	0.32	0.45	0.97	1.53	1.91
Personal/Other	2.73	2.57	2.71	2.82	2.81	2.72
All Coursework[a]	21.52	20.59	21.01	21.45	22.07	22.33
Percentage of All Students	100.0	17.8	20.3	18.7	23.9	19.0

Source: See table 1-1.
a) Total coursework includes enrollments in special education, which account for an average of only 0.02 credits in the HS&B sample.

ACADEMIC AND PERSONAL/OTHER EDUCATION

The chapter thus far has focused exclusively on the secondary vocational curriculum, but even students who take a substantial amount of vocational education take the majority of their coursework in academic subjects. As indicated in the first column of table 1-8, 1982 graduates earned an average of 14.4 academic credits--about two-thirds of all high school coursework. Personal/other courses, such as physical education and health, accounted for another 2.7 credits--12.7 percent of all coursework. As expected, English and social studies accounted for the largest share of academic credits, 3.9 and 3.2 credits, respectively. Mathematics and science accounted for 2.6 and 2.2 credits, and fine arts and foreign languages accounted for 1.4 and 1.1 credits.

Previous tables have demonstrated a strong negative relationship between postsecondary educational plans and participation in vocational training. Table 1-8 shows the contrasting links between postsecondary plans and nonvocational enrollments. In general, there was a tendency for persons with the highest educational plans to take significantly more foreign language instruction, mathematics, and science. In contrast, participation in English, social studies, fine arts, and personal/other coursework essentially did not vary with respect to postsecondary educational plans. In the case of English and social studies, and perhaps personal/other coursework, this invariance probably reflects the fact that many states, even in 1982, before the sweep of academic reforms, required students to take at least 4 credits in English, 3 in social studies, and 2 or more in health and physical education. It appears that most students took no more than the required amount of coursework in these subjects. But most states had less stringent requirements for mathematics and science, and no minimum requirements for foreign languages, vocational education, and fine arts. It appears that students allocated the vast majority of their elective (discretionary) credits among these five (competing) subjects.

The trade-off between enrollment in vocational education and nonvocational courses is illustrated directly in table 1-9 and appendix table C-3. These tables report average enrollments in nonvocational subjects separately for persons with different amounts of vocational coursework. Because

Table 1-9. Average Academic and Personal/Other Credits by Level of Vocational Enrollment and Post Secondary Educational Plans, 1982

Educational Plans	Vocational Credits 1-2	3-4	5-6	7 or more	Difference[a]
1. No Post Secondary Plans					
Vocational	1.39	3.32	5.37	8.32	6.93
Academic	14.93	13.16	12.27	10.69	-4.24
Mathematics	2.49	2.09	2.02	1.68	-0.81
Science	2.11	1.81	1.68	1.48	-0.63
English	4.02	3.89	3.88	3.69	-0.33
Social Studies	3.22	3.20	3.09	2.83	-0.39
Fine Arts	2.17	1.77	1.33	0.81	-1.36
Foreign Languages	0.92	0.40	0.27	0.20	-0.72
Personal/Other	2.84	2.91	2.72	2.29	-0.55
Total Nonvocational	17.77	16.07	14.99	12.98	-4.79
Total Coursework	19.38	19.40	20.45	21.36	1.99
Percentage of Students[b]	7.6	19.2	26.6	46.6	N/A
2. B.A./B.S. Plans					
Vocational	1.30	3.21	5.10	8.08	6.78
Academic	17.67	16.20	13.94	11.96	-5.71
Mathematics	3.45	3.13	2.79	2.20	-1.25
Science	2.88	2.60	2.15	1.77	-1.11
English	4.10	4.01	3.92	3.66	-0.44
Social Studies	3.36	3.33	3.17	2.93	-0.43
Fine Arts	1.82	1.67	1.02	0.85	-0.97
Foreign Languages	2.06	1.46	0.89	0.55	-1.51
Personal/Other	2.99	2.85	2.69	2.37	-0.62
Total Nonvocational	20.66	19.05	16.63	14.33	-6.33
Total Coursework	21.98	22.27	21.74	22.42	0.44
Percentage of Students[b]	37.8	33.1	19.2	9.9	N/A

Source: See table 1.1.
Note: These tables exclude a small number of students with no vocational enrollments. Total coursework includes enrollments in special education, which account for an average of only 0.02 credits in the HS&B sample.
a) This column is the difference of column 4 less column 1.
b) The percent of students numbers (last row of each subtable) sum to 100 percent. This row indicates the share of students with given postsecondary plans who are enrolled in a particular amount of vocational education.

enrollment patterns differ significantly among college- and noncollege-bound students, separate tabulations are given for students with different postsecondary study plans. Table 1-9 contains the tabulations for persons with no postsecondary study plans and those who planned to earn a baccalaureate degree (B.A. or B.S.). Appendix table C-3 contains tabulations for the remaining three groups.

As indicated in the top half of table 1-9, work-bound students with only 1 to 2 vocational credits took an average of 14.9 academic credits and 2.8 personal/other credits. Groups with progressively greater vocational enrollments (3-4, 5-6, 7 or more) were enrolled in progressively less academic and personal/other coursework. However, as indicated in the far right-hand column, the decline in total nonvocational coursework from the high to the low vocational enrollment group represented only 4.8 credits, substantially less than the increase in vocational enrollment across these two groups, 6.9 credits.

The difference, about two credits, was due to a substantially higher overall enrollment rate among the top vocational group. In other words, almost a third of the increase in vocational enrollment among work-bound students was accounted for by increased overall enrollment rather than a reduction in nonvocational coursework. Furthermore, fine arts absorbed a disproportionately large share of the decline in academic coursework, 1.4 credits, an amount roughly equal to the combined reduction in mathematics and science.

In summary, among work-bound students, an increase in vocational enrollment of 5 credits was associated with an enrollment decline in the "new basics" (English, social studies, mathematics, science, and foreign languages) of approximately 2 credits, a sacrifice ratio of only 42 percent. (As indicated in appendix table C-3, similar results apply to vocational/technical-bound students.)

The results for college-bound students differ sharply, as indicated in the bottom half of table 1-9. Overall enrollments tended to be high for these students at all levels of vocational enrollment. Thus, there was little opportunity to increase participation in vocational education by increasing overall enrollment. More than 90 percent of the increase in vocational enrollment among baccalaureate-bound students was accounted for by reduced nonvocational coursework. Reduced enrollments were particularly

acute in foreign languages, mathematics, and science. An increase in vocational enrollment of 5 credits was associated with an enrollment decline in the new basics of 3-1/2 credits, a sacrifice ratio of 70 percent. Perhaps in response to this "high cost," the vast majority of college-bound students were enrolled in no more than 4 vocational credits.

This section has demonstrated the trade-offs that exist in enrollments in vocational education, mathematics, science, foreign languages, and fine arts. On the basis of this analysis it seems likely that increased graduation requirements in mathematics, science, and other subjects will reduce enrollments in vocational education. For example, among work-bound students in 1982, even those students with the lowest vocational coursework (1 to 2 credits) took an average of only 4.6 mathematics and science credits. Those students with 7 or more vocational credits took even less, 3.2 credits. Because most states now require at least 5 total credits in these two subjects, the enrollment choices of work-bound students are likely to be significantly affected by the new graduation requirements. In contrast, the enrollment choices of students with baccalaureate and advanced degree plans are likely to be relatively unaffected by the new graduation requirements, because most of these students in 1982 already satisfied these requirements.

TRENDS IN ENROLLMENT

The description of vocational participation presented up to this point is based on information from one group, the high school class of 1982. Case studies carried out by the National Assessment as well as studies of trends in vocational participation carried out by others have alerted us to changes that may be taking place in overall participation in secondary vocational education. (Chapter 3 describes the case studies from which the information in this section is drawn.) The National Assessment will be exploring these trends more fully through a comparison of the vocational course-taking patterns of the class of 1982 with those of the class of 1987. That course-taking information is currently being collected from the High School Transcript Study for the class of 1987. NAVE will then be able to describe changes in course taking over those five years.

One change has been noted with such frequency that it seems important to describe what is known about it at this time. That change is a decline in the number of students participating in vocational education classes at the secondary level. Although it is true that overall secondary enrollments have declined, at least two state-level enrollment studies, as well as several other more impressionistic studies, have suggested that the rates of decline in vocational course are substantial and may exceed overall enrollment declines.

The rest of this chapter discusses what is known about enrollment decline and considers some of its possible effects. Bear in mind that these observations on trends are tentative, and that the National Assessment will learn much more about the extent of change and its causes through examination of student participation using nationally representative transcript surveys as well as through state and local case studies.

With few exceptions, information from the communities studied indicates declining enrollment in vocational education at the secondary level.[12] The preliminary case study information is buttressed by reports on vocational enrollments from state-level studies, two conducted by PACE in California and one by the New York State Education Department.[13] The California studies found that after adjusting for overall enrollment decline, declines in vocational enrollment ranged from 11 percent in business education to 21 percent in home economics. In New York, all occupational education declined by 6.7 percent between 1982-83 and 1985-86, when overall enrollment decline was 5.1 percent. The decline in vocational education enrollment was concentrated in area schools (17.5 percent) and

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[12]NAVE does not yet have information on total enrollments in these school districts that would allow determining whether total enrollments are also down, and, if so, whether vocational enrollments are dropping slower or faster than overall enrollments.

[13]Pam Grossman et al., Curricular Change in California Comprehensive High Schools, 1982-83 to 1984-85 (Berkeley: Policy Analysis for California Education (PACE), 1985). This study traced declines in sections offered in comprehensive high schools. James W. Guthrie et al., Conditions of Education in California, 1986-87 (Berkeley: PACE, 1987), This study uses a statewide data base (CBEDS) to trace changes from 1984 to 1986, concluding that the trend continues. Report on BOCES Occupational Education Programs (Albany: New York State Department of Education, 1987). The New York figures are based on "unduplicated" counts of individual students enrolled, regardless of the number of vocational classes each student takes.

smaller school districts (16.2 percent). The five largest school districts had a combined increase in vocational enrollments of 5.5 percent. These sources support the view that declines in enrollments in vocational programs appear to be more rapid than overall declines in the population of students in secondary education.[14]

The extent of, and the reasons for, the decline in enrollment will be explored in greater detail in the forthcoming case studies as well as in the national survey of school districts and statistical enrollment studies, but possible explanations have been suggested in fieldwork undertaken by NAVE and by New York State. This section outlines each of the possible explanations encountered and comments on potential effects of the changes on efforts to pursue the goals of the Perkins Act. In the next round of case studies, the National Assessment will try to determine which of these conditions explain enrollment decline and population shifts in particular institutions and districts, whether the trend is continuing, and what its implications are. The National Assessment studies of participation in vocational education and the effects of the academic reform movement will document, in detail, patterns of participation and the clientele of vocational education from 1960 to 1987. These studies are described in the project abstracts that follow in part II.

POSSIBLE REASONS FOR ENROLLMENT TRENDS

Over the past ten years, the student population in grades nine through twelve has dropped from 14.5 million to 12.8 million, a decline of 12 percent.[15] Faced with decline, most school districts did not cut back

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[14]One additional report should be noted: Nevin Frantz et al., A Report on High School Graduation Requirements and Enrollment Patterns in High School Vocational Education Programs in the United States (Blacksburg: Virginia Polytechnic Institute and State University, 1987). This survey of state vocational education directors asked about enrollment patterns and their relationship to graduation requirements. The report asked whether enrollments had increased, decreased, or remained the same. The authors conclude that vocational enrollments are declining, but are not able to describe whether those declines are greater or less than overall enrollment declines.

[15]U.S. Department of Commerce, Bureau of the Census, Current Population Survey, October 1985

immediately and fully on staff and facilities but generally sought ways to preserve programs. Although this approach may appear to be self-serving, there are solid reasons not to dismantle facilities posthaste. Preserving programs may make it possible to offer smaller classes, more specialized instr*uction, and greater individual attention. It also may make sense to maintain programs where there are indications that the population decline is temporary and that secondary schools will soon experience increasing enrollments. Nonetheless, administrators fear that the number of students may not continue to justify current levels of staff and facilities.

Area Vocational Schools

When facilities are underused and staffing levels greater than can be justified in some cases, schools may begin to compete for students. Vocational administrators in the New York study indicate that competition has emerged between comprehensive "home" high schools and area vocational facilities for students who might have previously attended the area facility on a part-day or other part-time basis. Competition may take many forms: Administrators may urge counselors and teachers to discourage attendance at the area facility. School personnel may try to impress on students that academic education is more important than vocational training or that attending the vocational facility will interfere with extracurricular activities. In cases where a group of school districts contribute students and resources to an area facility, an individual district may cap the overall number of students it will support at, or allow to attend, the area facility. It may refuse to allow students to attend an area facility if the district has a similar vocational program. Sometimes individual districts will direct the most "costly" students, such as the special education students, to the area facility.

Administrators of some area facilities report that they are having to struggle to gain enough students. They are particularly concerned about the role of counselors in home high schools who, some believe, actively discourage attendance. They also complain about increasingly limited access to students in middle schools whom they would like to approach about high school vocational education. Some say that whereas they were once afforded opportunities to make presentations in classes, assemblies, and in meetings with parents, administrators now restrict these opportunities.

There is concern that academically talented students especially are discouraged.[16]

In cases where an area facility is a consortium, administered by a group of surrounding districts, the competition for students may make it difficult for the area facility administrator to undertake program changes or reforms, because the more attractive the area school program, the greater the threat. A few area administrators in the case studies reported that districts had withdrawn from consortium arrangements in recent years; one reason they cited was increasing difficulty in maintaining their own programs. Some area school administrators describe a sizable portion of their job as public relations, with one of their major functions being to maintain the enrollment of schools and districts in their consortium. Many area facilities were built or greatly expanded in the 1970s, a period of rising enrollments overall.

Academic Reform Movement

There is little doubt among case study respondents in the preliminary studies, as well as in the New York and California state studies, that recent academic reforms have exacerbated the difficulties brought on by declining overall enrollments. The New York study further suggests that reforms have had some effect on enrollments in comprehensive high schools but that their greatest effects have been at area facilities. Among the specific reforms that are perceived to play a role in decreasing overall enrollments and changing the mix of students in vocational education are increases in the number of units in core or academic courses required for graduation, introduction of minimum competency or more rigorous examinations for graduation, and introduction of advanced diplomas or special certificates for additional academic coursework (or comparable changes in entrance requirements by state college or university systems). Local reforms in many districts preceded state action, and so the effects are being noted even though statewide reforms may only now be taking effect.

These reforms add up to additional and competing demands on students' time. First, school districts and states have increased the number of units or year-long courses required for graduation, particularly in mathe-

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[16]The statements in this paragraph are a reflection of opinions that were expressed to field staff and to staff of NAVE in site visits.

matics and science, but also in English, foreign language as before, and other subjects. These unit increases appear to have the greatest effect for work-bound students or for students below the top quartile in achievement, who were least likely to be taking sizable numbers of units in academic fields previously. Second, competency and other testing for graduation means that poorer-performing students will spend more time than previously in remedial instruction. Third, advanced diplomas, state certificates, or other recognition for additional academic coursetaking substantially restrict the time of talented students--that is, those least likely to be affected by increased core requirements or competency tests. Administrators report that students who plan to go to college now must, or should, plan their entire high school curriculum by the end of seventh or eighth grade, and those decisions often preclude vocational education entirely.[17]

Beyond the specific effects of reforms, many vocational educators believe that the reform movement has created a climate in which academic education is valued more highly than vocational education. This climate makes it easier for counselors and others to persuade students to forgo vocational instruction.

Although the reforms do place new demands on student time, the reasons for their effects do not appear to lie solely with the reforms or the climate of reform. After all, even such unusually stiff requirements as 15 core courses (4 units of English, 3 units of social studies, 5 units of math and science combined, and an additional, say, 3 units) would leave room for vocational coursetaking, because most states and localities now require 20 to 24 units for graduation. Yet vocational and academic administrators alike say that these changes are significantly restricting vocational coursetaking.

Organization of Vocational Education Curriculum

The answer may be that it is both the additional requirements and the ways in which vocational education is organized that combine to decrease participation. First, many vocational education programs are designed as

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[17]According to table 1-3, the average student takes approximately 4.35 units of vocational education. Even a 1-unit drop for half the students in a school district could mean a 12 percent enrollment drop.

multiyear, multicourse, multiperiod programs. It is not uncommon to find programs that are designed to begin in ninth grade and include instruction for two or three hours a day over three or four years. Other programs may be limited to two years but offered in full-morning or full-afternoon blocks of time. Some states provide additional support or reimbursement only for those vocational programs that are offered in three- or four-hour blocks of time, creating a powerful incentive to maintain them. Tradition, and shared beliefs about the amount of time needed to learn a subject, play important roles in determining the ways in which instruction is organized. Nonetheless, in the face of academic changes, substantial, required time commitments make vocational coursetaking difficult for some students and impossible for others.

The impact appears to be greatest, once again, at part-day or area vocational facilities. These are the places where vocational education is likely to require the greatest time commitments--with half-day or comparable blocks of time for instruction quite common. In addition, most school systems transport students by bus from their home high schools to area schools and, whereas time en route might have been a simple inconvenience in the past, it now drains the time that students may need to complete additional academic coursework. Some districts have tried to overcome this problem by scheduling academic and vocational coursework on alternate weeks, but this approach creates different problems because vocational students cannot attend home high school classes with students other than those who also attend the area vocational school, nor can they participate fully in extracurricular activities at their home high schools. In one district we visited, students at area vocational schools are required to take substantially more coursework than other students in order to satisfy both the vocational concentration requirements and the academic requirements for graduation.

State and Local Responses to Declining Enrollments

At the same time that declining enrollment is taking place, vocational educators are rethinking the organization and content of programs. A variety of changes that have been introduced may serve to bolster enrollments and attract a wider mix of students. Those changes are also linked to other concerns about the quality and mix of programs. Changes that are

taking place at the state and district levels are discussed in the paragraphs that follow.

Gaining academic credit for vocational offerings. These efforts focus on documenting the academic content of vocational courses so that students may receive core credit for vocational courses and need not trade off vocational for academic instructional hours. This reform is not designed solely to make it easier for students in vocational programs to meet core requirements, however. It also reflects a growing interest in increasing the academic content of vocational courses, as a way of using vocational or "hands on" education to teach academic subject matter.

Requiring vocational education. In a few states and localities, vocational educators have lobbied successfully for requirements that all students experience some form of vocational education, such as a course or unit in career exploration. More commonly, vocational educators have sought to allow vocational education to substitute formally for core requirements in areas such as foreign languages or fine arts.

Decreasing the course hour or unit requirements for state approval of vocational offerings. In most states, some type of state program approval is required for all vocational courses. In some states there is also a policy of additional state subsidy or reimbursement for vocational offerings of a particular type or length. For example, in one state, a four-hour per day requirement for state reimbursement of local vocational programs has been changed to two hours of vocational education and two hours of related academic instruction.

Adding vocational programs of shorter duration. Districts and states are adding one-year programs in areas such as horticulture or health. In addition, some area schools are adding first- or last-period avocational or general interest programs for students who are not pursuing multiunit vocational programs. These programs are in subject areas ranging from photography to computer programming and are often designed to attract college-bound students.

Increasing the links between secondary and postsecondary offerings. This change may entail agreements by which high school students receive college credit for vocational courses, thereby increasing the attactiveness of the programs, especially for the college-bound. It may also take the form of agreements that an area vocational school will teach some subjects

and a nearby community college or technical institute will teach others, so that duplication of offerings is avoided and institutions do not compete for students.

Seeking new students. Vocational educators report that they are absorbing larger numbers of special education students as well as students who do not have the academic preparation of their predecessors.[18] They also report changes in course offerings and the pace of instruction to accommodate these differences in the nature of the vocational student body.[19] Although no conclusive evidence is currently available, administrators of area schools report that they are seeking and attracting more adult enrollees. In some cases, area schools that were originally designed to serve high school students are becoming predominantly adult institutions. As reported in the next chapter, vocational education is also an approach in alternative programs and schools for potential or actual dropouts, and seeking this population may also serve to increase enrollments.

Exceptions. Some areas of the country are not experiencing a decline in secondary vocational enrollments. These include areas that continued to have relatively high birthrates in the 1970s, such as Utah, as well as areas with extensive inmigration. They also may include some of the larger cities, a finding of the New York State report. Early work of the National Assessment has identified two developments that may help explain the lack of decline in some large cities. One is a small growth in the number and prestige of full-day vocational high schools, especially those that combine vocational education and college preparation. The other is the designation

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[18]This change is reported in Frantz et al., A Report on High School Graduation Requirements and Enrollment Patterns, as well as in our case studies and those completed by Becky Hayward of Policy Studies Associates under contract to NAVE. Hayward's report will be published as a NAVE Discussion Paper.

[19] Because more students in public school are disadvantaged overall, it is possible that even without declining enrollments more students enrolled in vocational education would be disadvantaged, but the need to fill classrooms may act as an additional incentive to accept the disadvantaged.

of vocational high schools and area schools as magnet schools, making them attractive and accessible to a wider range of potential students.[20]

Implications of Declining Enrollment for Federal Objectives

To what extent does the decline in secondary vocational enrollments, and the response of vocational educators to decline, appear to affect the twin federal objectives of serving special populations and improving the quality of vocational instruction? This will be an important area for exploration in forthcoming studies of vocational participation as well as the implementation surveys and case studies. Specific questions include the following:

1. If the vocational system is, in fact, experiencing declining enrollment, to what extent can it be expected to undertake reforms that might further alter the nature of instruction? Some of the most talked-about reforms have important implications for both the location and the extent of instruction. For example, reforms that would combine academic and vocational education in a single course or in related courses might well affect the current mix of vocational courses at comprehensive high schools, area facilities, and full-day vocational high schools. Programs combining academic and vocational instruction might simply be easier to implement in comprehensive high schools. Reforms that encourage instruction in general or transferrable vocational skills, shift specific occupational training to the very end of high school, or move it to postsecondary education might result in a further decline in the overall amount of occupational training in high schools.

2. Alternatively, do declining enrollments at the secondary level give districts an opportunity to focus resources on disadvantaged students and others who are more likely to enter the labor market immediately after high

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[20]A problematic element in the magnet school concept is that, in order to achieve racial balance, such schools may have waiting lists for blacks but not for whites. The Frantz study did not find conclusive evidence, based on its survey of state directors of vocational education, of a direct link between changes in state graduation requirements and vocational enrollments. The study did report that several respondents indicated that changes in graduation requirements were important. It also noted that two additional years would be required to observe the effects in most states.

school? Population shifts may also make it possible to streamline the curriculum and organize the training network more efficiently.

3. If students with special needs make up an increasing proportion of the secondary vocational enrollment, can the goal of improved access to high-quality programs be achieved? The question may be most important for handicapped students. Although changes in federal legislation have removed some of the incentive to place handicapped students in separate programs, mainstreaming may not be possible if handicapped students come to account for a sizable percentage of all vocational students. But enrollment decline may also mean smaller classes and more individual attention for all students, as well as teaching materials that are optimally suited to the existing students.

4. What is the likelihood that institutions or agencies that sometimes compete for the same students will seek ways of coordinating programs, sharing resources and carrying out other activities associated with improvement? This is an important concern for reforms that are predicated on cooperation among institutions and departments--such as those that combine academic and vocational coursework. It may also be an issue in cooperation between vocational education programs and Job Training Partnership Act program.

5. If area vocational schools are, in fact, experiencing greater-than-average enrollment declines, what are the implications for distributing federal funds, which currently tend to be spent in these institutions?[21]

In short, enrollment decline in relation to federal policy may be viewed in a variety of ways. It may be that enrollment decline and a shift in the mix of students in secondary vocational education are such powerful trends that they swamp or work against reform efforts. It may be that these trends force vocational educators to reassess their role and their offerings and make substantial changes. Or perhaps the decline in enrollment has been overstated, or is of short duration, or has few if any effects on the implementation of the Perkins Act or on the broader achievement of federal goals. The National Assessment may be able to describe trends in

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[21]This statement is made on the basis of information from a group of preliminary case studies completed for NAVE and discussed briefly in chapter 2.

participation with greater assurance after the analysis of the transcripts of recent high school graduates is completed.

Appendix A

CRITICISM OF PROGRAM PARTICIPATION DATA

The portrait of vocational education derived from actual high school transcripts differs sharply from the traditional portrait obtained from track or program data. Program data identify students as participants in one of three mutually exclusive programs: the academic, general, or vocational program. A comparison of course enrollment and program participation data reveals that the latter are error-prone, misleading, and of limited policy interest. One study, using data from the National Longitudinal Study of the High School Class of 1972 (NLS-72), compared self-reports and school reports of students' high school program. These reports, which should have been identical, disagreed more than 30 percent of the time, and, in the case of the general program disagreed more than 40 percent of the time.[22]

In 1982, only 27 percent of the seniors in the High School and Beyond Survey reported that they were enrolled in a vocational program; 33 percent were enrolled in a general program; and 40 percent were enrolled in an academic program. These statistics provide a very misleading picture of the high school curriculum in view of the fact that course enrollment data indicate that (1) 95 percent of academic students and 99 percent of general students participated in vocational education, (2) 60 percent of all vocational courses were taken by academic and general students, and (3) many academic and general students took a substantial amount of vocational coursework, and many self-styled vocational students took little or no vocational education. Similar findings have been reported for other data sets at different times.[23]

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[22]Robert H. Meyer, "An Economic Analysis of High School Vocational Education," in The Federal Role in Vocational Education, Special Report #39, National Commission for Employment Policy (Washington, D.C.: 1982). Robert H. Meyer, "Curriculum, Work Experience and Other High School Activities," Unpublished paper, the Brookings Institution, May 1985.

[23]Ibid.

Finally, high school program measures are of limited policy interest because they are incapable of capturing changes in enrollments in individual subjects, such as math and science, that have been targeted by recent academic reforms, and because they are only vaguely correlated with overall vocational and academic enrollments. Hence, they are unreliable for assessing changes in the participation of students by race and sex in vocational education or changes in the nature of vocational courses or patterns of vocational participation. For these reasons the National Assessment has chosen to base its empirical descriptions and evaluations of vocational education on course enrollment data derived from individual transcripts.

APPENDIX B
SECONDARY SCHOOL COURSE TAXONOMY
(OUTLINE)

I. ACADEMIC COURSES

1. Mathematics
    a. Basic
    b. General
    c. Applied
    d. Pre-Algebra
    e. Algebra 1
    f. Geometry
    g. Advanced--Other
    h. Advanced Calculus

2. Science

2.1 Survey and Other Science
    a. Basic
    b. Specialized Topics

2.2 Biological Science
    a. Basic
    b. Regular
    c. Advanced, Honors, and A.P.
    d. Specialized Topics

2.3 Chemistry
    a. Basic
    b. Regular
    c. Advanced, Honors, and A.P.
    d. Specialized Topics

2.4 Physics
    a. Basic
    b. Regular
    c. Advanced, Honors, and A.P.
    d. Specialized Topics

3. English

3.1 English Survey and Skills
    a. Remedial English
    b. Grade 7 and 8
    c. Grade 9/English 1
    d. Grade 10
    e. Grade 11
    f. Grade 12
    g. Grade 12 A.P.
    h. Language/Writing Skills

3.2 Literature

3.3 Composition and Writing

3.4 Speech

4. Social Studies

4.1 American History
    a. Basic/Remedial
    b. Regular
    c. Advanced, Honors, and A.P.
    d. Specialized Topics

4.2 World History
    a. Regular
    b. Advanced, Honors, and A.P.
    c. Specialized Topics

4.3 American Government and Politics
    a. Basic
    b. Regular
    c. Advanced, Honors, and A.P.
    d. Specialized Topics

4.4 Social Science, Humanties, and Other
    a. Basic Survey Topics
    b. Regular Survey Topics
    c. Advanced, Honors, and A.P.
    d. Specialized Topics

5. Fine Arts

5.1 Fine Arts and Crafts
    a. Basic
    b. Regular

5.2 Music
    a. Basic
    b. Regular

5.3 Dramatic/Dance

6. Foreign Languages
    a. Survey and ESL
    b. Year 1 (7th, 8th, and 9th Grade)
    c. Year 2
    d. Year 3
    e. Year 4 and Higher

Foreign Languages by Language
    a. Spanish
    b. French
    c. German
    d. Latin
    e. Other (Including Survey
    f. English as a Second Language

II. VOCATIONAL EDUCATION CURRICULUM

A. Consumer and Homemaking Education
   a. First Course in Sequence
   b. Second or Later Course in Sequence
   c. Non-Sequential

B. General Labor Market Preparation
1. Typewriting I
2. Introductory Industrial
3. Work Experience/Career Exploration
4. General Labor Market Skills

C. Specific Labor Market Preparation

1. Agriculture and Renewable Resources
   a. First Course in Sequence
   b. Second or Later Course in Sequence
   c. Non-Sequential

2. Business
2.1 Business and Management
   a. First Course in Sequence
   b. Second or Later Course in Sequence
   c. Non-Sequential
2.2 Business Support
   a. First course in Sequence
   b. Second or Later Course in Sequence
   c. Non-Sequential

3. Marketing and Distribution
   a. First Course in Sequence
   b. Second or Later Course in Sequence
   c. Non-Sequential

4. Health
   a. First course in Sequence
   b. Second or Later course in Sequence
   c. Non-Sequential

5. Occupational Home Economics
   a. First Course in Sequence
   b. Second or Later Course in Sequence
   c. Non-Sequential

6. Trade and Industrial
6.1 Construction Trades
   a. First Course in Sequence
   b. Second or Later Course in Sequence
   c. Non-Sequential
6.2 Mechanics and Repairers
   a. First Course in Sequence
   b. Second or Later Course in Sequence
   c. Non-Sequential
6.3 Precision Production
   a. First Course in Sequence
   b. Second or Later Course in Sequence
   c. Non-Sequential
6.4 Transportation and Material Moving
   a. First Course in Sequence
   b. Second or Later Coursein Sequence
   c. Non-Sequential

7. Technical and Communications
   a. First Course in Sequence
   b. Second or Later Course in Sequence
   c. Non-Sequential

8. Specific Labor Market, Unidentified Subject
   a. Second or Later Course in Sequence

III. PERSONAL/OTHER CURRICULUM

1. General Skills
2. Health, Physical, and Recreation Education
3. Religion and Theology
4. Military Science

IV. SPECIAL EDUCATION

A. Academic
B. Vocational
C. General

A report describing the SST and its development will be published by the National Assessment. The report will contain a list of all 2,000 courses in the Classification of Secondary School Courses (CSSC), classified according to the structure of the SST. Other course listings, such as those used to code courses in the NLS Youth data base, Project Talent, and other major transcript data bases, also will be classified according to the SST.

Appendix C

Additional Tables on Vocational Enrollments

Table C-1.
Average Vocational Enrollment by Postsecondary Educational Plans

Vocational Subjects	None	Vocational/ Technical	Less than B.A./B.S	B.A./B.S.	Graduate Professional	Ability Quartile (percentage) <25	25-50	50-75	>75
All Vocational Education	6.01	5.75	4.58	3.20	2.54	5.80	5.39	4.34	2.64
Consumer and Homemaking Education	0.85	0.91	0.70	0.46	0.37	1.06	0.80	0.61	0.31
General Labor Market Preparation	1.21	1.07	1.07	0.86	0.70	1.18	1.14	0.97	0.71
Typing I	0.50	0.54	0.62	0.58	0.50	0.52	0.60	0.58	0.51
Specific Labor Market Preparation	3.95	3.78	2.82	1.89	1.47	3.56	3.45	2.76	1.62
First Course	2.32	2.25	1.72	1.19	0.93	2.02	2.07	1.69	1.06
Second Course or More	1.32	1.24	0.84	0.49	0.38	1.25	1.06	0.83	0.40
Selected Subjects									
Business Management	0.30	0.27	0.24	0.19	0.12	0.26	0.28	0.23	0.15
Business Support	0.88	0.94	1.03	0.65	0.49	0.87	0.95	0.89	0.52
T&I Precision Production	0.88	0.83	0.56	0.42	0.32	0.67	0.74	0.63	0.40
Technical Communications	0.06	0.08	0.11	0.14	0.11	0.06	0.08	0.10	0.14
Percentages of All Students	17.8	20.3	18.7	23.9	19.0	18.3	24.4	27.0	30.0

Source: High School and Beyond Sophomore Transcript File, Center for Education Statistics, U.S. Department of Education
Note: All tables in this appendix are based on 1982 data; the columns may not add to totals because of rounding.

Table C-2.
Average Vocational Enrollments by Sex, Race, and Family Income, 1982

Vocational Subjects	Male	Female	American Indian	Asian	Hispanic	Black	White	Family Income (1,000s) Less than $15,000	$15,000-$25,000	$25,000-$40,000	More than $40,000
All Vocational Education	4.30	4.41	4.94	2.99	4.54	4.77	4.29	5.12	4.64	4.16	3.18
Consumer and Homemaking Education	0.28	0.98	0.61	0.34	0.82	0.89	0.60	0.92	0.68	0.56	0.40
General Labor Market Preparation	0.90	1.03	1.12	0.87	1.08	1.00	0.96	1.08	1.03	0.92	0.81
Typing I	0.37	0.71	0.47	0.51	0.57	0.54	0.55	0.57	0.56	0.56	0.50
Specific Labor Market Preparation	3.11	2.39	3.22	1.79	2.65	2.88	2.73	3.12	2.93	2.68	1.97
First Course	1.91	1.43	1.87	1.09	1.66	1.63	1.67	1.87	1.77	1.64	1.26
Second Course or More	0.94	0.75	0.98	0.48	0.79	0.94	0.83	0.99	0.91	0.79	0.55
Selected Subjects											
Business Management	0.19	0.25	0.18	0.13	0.20	0.23	0.23	0.27	0.25	0.19	0.19
Business Support	0.30	1.23	0.76	0.48	0.80	0.72	0.80	0.92	0.85	0.79	0.52
T&I Precision Production	1.07	0.16	0.72	0.51	0.67	0.56	0.59	0.57	0.62	0.64	0.51
Technical/Communications	0.12	0.08	0.05	0.18	0.08	0.10	0.10	0.08	0.09	0.11	0.12
Percentage of All Students	47.6	52.4	1.1	1.3	6.1	12.0	79.2	20.8	28.7	31.7	18.9

Source: See table A-1.

Table C-3.
Average Academic and Personal/Other Credits by Level of
Vocational Enrollment and Postsecondary Educational Plans, 1982

Educational Plans	Vocational Credits 1-2	3-4	5-6	7 or more	Difference[a]
1. Vocational/Technical Plans					
Vocational	1.57	3.31	5.26	8.21	6.64
Academic	15.26	13.63	12.81	11.18	-4.08
Mathematics	2.45	2.28	2.10	1.85	-0.60
Science	2.17	1.89	1.75	1.58	-0.59
English	4.17	3.73	3.78	3.68	-0.49
Social Studies	3.39	3.17	3.21	2.97	-0.42
Fine Arts	2.06	1.87	1.54	0.88	-1.18
Foreign Languages	1.02	0.69	0.43	0.22	-0.80
Personal/Other	3.34	2.97	2.72	2.44	-0.90
Total Nonvocational	18.60	16.60	15.53	13.62	-4.98
Total Coursework	20.18	19.94	20.81	21.86	1.68
Percentage of All Students	9.0	20.6	28.4	42.1	N/A
2. Less Than B.A./B.S.					
Vocational	1.34	3.21	5.18	8.22	6.88
Academic	16.94	14.91	13.25	11.38	-5.56
Mathematics	3.05	2.75	2.35	1.86	-1.19
Science	2.59	2.25	1.95	1.50	-1.09
English	4.10	4.01	3.89	3.63	-0.47
Social Studies	3.49	3.38	3.13	2.94	-0.55
Fine Arts	1.93	1.43	1.29	0.97	-0.96
Foreign Languages	1.78	1.09	0.64	0.48	-1.30
Personal/Other	3.04	2.88	3.02	2.40	-0.64
Total Nonvocational	19.98	17.79	16.27	13.78	-6.20
Total Coursework	21.33	20.99	21.45	22.01	0.68
Percentage of All Students	20.4	29.0	24.4	26.3	N/A
3. Graduate/Professional					
Vocational	1.24	3.10	5.16	7.79	6.55
Academic	18.51	16.19	14.09	12.41	-6.10
Mathematics	3.63	3.22	2.76	2.24	-1.39
Science	3.28	2.71	2.15	1.99	-1.29
English	4.13	4.00	4.00	3.88	-0.25
Social Studies	3.37	3.35	3.33	3.09	-0.28
Fine Arts	1.71	1.33	0.94	0.82	-0.89
Foreign Languages	2.39	1.58	0.91	0.39	-2.00
Personal/Other	2.75	2.73	2.56	2.56	-0.19
Total Nonvocational	21.26	18.92	16.65	14.97	-6.29
Total Coursework	22.52	22.03	21.82	22.77	0.25
Percentage of All Students	50.4	28.4	14.2	6.9	N/A

Source: See table B-1. a) Difference of column 4 - column 1. Note: See note for table 1-9.

Chapter 2

DISADVANTAGED PERSONS AND FEDERAL VOCATIONAL EDUCATION POLICY

This chapter discusses one of the most important issues arising out of the Perkins Act--the implementation of the act's provisions to enhance the vocational education of disadvantaged students.[1] Among the special populations targeted for assistance in the Perkins Act (P.L. 98-524, October 19, 1984), disadvantaged persons receive the largest share of federal support. In conjunction with the Job Training Partnership Act (JTPA) and other employment and training legislation, the Perkins Act is a reflection of an enduring federal commitment to improve the economic prospects of poor and minority youth and adults by providing access to employment training.

The act extends and strengthens provisions for the disadvantaged included in vocational education legislation for nearly a quarter-century. It stipulates that 22 percent of the funds in the basic grant be set aside for this group. An additional set-aside of 8.5 percent is established for single parents and homemakers, a subgroup composed heavily of disadvantaged persons. Unlike previous legislation, the Perkins Act mandates a federally specified intrastate formula to ensure that set-aside dollars flow to the districts and institutions with the largest numbers of disadvantaged students. The act also includes a requirement that districts receiving federal funds provide certain services to all eligible disadvantaged students, not solely those students supported with federal funds. Finally, the Perkins Act strengthens requirements in previous legislation to redirect state and local funds as well, by stipulating that federal funds can be

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[1]In Section 400.4, the Perkins Act adopts the following definition of vocational education: "Vocational education means organized educational programs which are directly related to the preparation of individuals for paid or unpaid employment, in such fields as agriculture, business occupations, home economics, health occupations, marketing and distributive occupations, technical and emerging occupations, modern industrial and agricultural arts, and trades and industrial occupations, or for additional preparation for a career in those fields, and in other occupations requiring other than a baccalaureate or advanced degree." (Section 400.4, P.L. 98-524, October 19, 1984)

used to support only the additional costs of services for the disadvantaged, regardless of the setting.[2]

This chapter outlines the broad issues in vocational education for disadvantaged persons, the provisions of the Perkins Act that deal with the issues, and what the National Assessment has learned so far about services for the disadvantaged and how the act's provisions are being implemented.

ISSUES OF THE DISADVANTAGED IN VOCATIONAL EDUCATION

As defined by Congress, the problems that disadvantaged persons have with vocational education are inadequate service and limited access to high-quality programs. As the legislation notes,

> It is the purpose of this Act to...assure that individuals who are inadequately served under vocational education programs are assured access to quality vocational education programs, especially individuals who are disadvantaged. [Section 2(2)]
>
> Each state may use the portion of its [disadvantaged set-aside] for the improvement of vocational education services and activities designed to provide equal access to quality vocational education to disadvantaged individuals, the costs of services and activities which apply the latest technological advances to courses of instruction, and...the acquisition of modern machinery and tools. [Section 201(d)(1)]

The underlying assumption is that there are persons whose poverty or poor academic skills prevent them from succeeding in vocational education and that these persons require additional assistance to help them complete occupational programs. The act provides additional inducements for states

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[2]Under regulations in force under the 1976 amendments, when eligible disadvantaged students were served in separate settings (i.e., in settings composed solely of such students), the federal government would pay half of all costs. Now, only the additional costs of such services (when compared with similar programs for nondisadvantaged students) are considered "excess costs" and may be matched by federal funds.

and localities to deal with this problem by directing resources in the manner specified.[3]

To assess whether or not the problems of disadvantaged youth and adults are being addressed through federal legislation, it is first necessary to specify, in greater depth, the problems faced by the disadvantaged in vocational education as well as the means, within the Perkins Act, of dealing with these problems. We shall begin with a brief look at how these problems have been described by observers.

Issues at the Secondary Level

There is little information available about the unique problems faced by disadvantaged students in vocational education. Previous national studies of vocational education devoted a great deal of attention to whether school districts complied with existing federal rules on expenditures for disadvantaged students, while paying less attention to identifying the problems of these students and the mix of services that might solve these problems. The lack of attention to what services are most needed stemmed from a lack of solid information about whether, and if so which, disadvantaged students benefit from enrollment in vocational education. More important, even when problems of the disadvantaged were enunciated, it remained unclear what set of services would solve these problems.

Competing views of the problem. There are, in fact, differing views on the fundamental problems facing disadvantaged students in vocational education and the appropriate solutions.

Some observers maintain that the problem is that disadvantaged persons are insufficiently prepared for occupations. Observing the limited labor market experiences and earnings of the poor and minorities, they have

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[3]Congress toughened the requirements after a General Accounting Office study argued that under weaker set-aside provisions in earlier legislation, states and localities were not devoting enough of their own resources to serving the disadvantaged in vocational education. In fact, they were failing to spend even the minimum federal set-aside amounts. General Accounting Office, What Is the Role of Federal Assistance for Vocational Education? (Washington, D.C.: U.S. Government Printing Office, 1974). The effects of the report are discussed in National Institute of Education, The Vocational Education Study: The Final Report, Chp. VII (Washington, D.C.: U.S. Government Printing Office, 1981).

concluded that labor market conditions and job discrimination are not the only explanations for inequities; they argue that part of the reason for higher unemployment, greater job insecurity, and lower pay is the lack of marketable skills. The failure to get these skills is, in turn, attributed to a lack of, or inadequate, vocational preparation. In this view, what is needed is greater access to vocational programs that teach job skills or that familiarize students with a wider range of job opportunities.[4] In some respects this view provides the overall rationale for federal support of vocational education.

This view is countered by some historians of 20th-century education who have observed that vocational education was, from its inception, designed to teach practical knowledge and job skills to students who did not seek an intellectually demanding education, all the while keeping them in school and out of the labor market. The growth of vocational education was a major part of the vast expansion and curricular transformation of secondary education in the early 20th century. As described by David Cohen,

> By 1910 educators everywhere were arguing that high school studies should be differentiated, with easier, more practical work being offered to students not bound for college....And by the 1930s the reforms were firmly in place....One essential change was the invention of a few broad academic avenues within the high schools--curriculum tracks--that were tied to preparation for work. Those students who seemed cut out for higher education...would enroll in an academic track....Those whose futures seemed to hold office work or lower management would enroll in a commercial curriculum....Those who seemed likely to move from school to labor in the trades and manufacturing would enroll in one or another vocational program....And those who had no evident destiny, or seemed incapable of settling on one, would enroll in a general curriculum that offered a smattering of studies in a variety of fields.[5]

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[4]See, for example, National Research Council, Education for Tomorrow's Jobs (Washington, D.C., National Academy Press, 1983), as well as other recent reports that stress the need to prepare disadvantaged youth for employment in a changing economic environment.

[5]David K. Cohen, "Origins," in The Shopping Mall High School, edited by Arthur Powell, Eleanor Farrar, and David Cohen, (Boston; Houghton Mifflin, 1985). Two other discussions of the development of the vocational curriculum and modern secondary education are included in Marvin Lazerson

One perception is that parents of many disadvantaged youth may share the view that vocational studies are designed for students with lower educational aspirations. Consequently, these parents are often ambivalent or negative about encouraging their sons and daughters to enroll in vocational programs as a way out of poverty.[6]

An alternative view: access to high-quality programs. These seem to be competing views of the role of vocational education. After all, the first holds that the problem is not enough vocational education, while the second holds that the problem is too much. In an analysis of the problems of the disadvantaged for the NAVE Design Conference, Charles Benson presented a third perspective. Benson argues that disadvantaged students are disproportionately in programs of low quality, that is, in programs that do not prepare them for jobs that pay decent wages and have career possibilities.[7] He alleged the access of disadvantaged students to high-quality programs is limited. The barriers may include distance from schools offering such programs, lack of knowledge about options, parental and peer attitudes, informal or union networks, competing graduation requirements, or unfair course prerequisites. As a result, vocational education may simultaneously offer a poor education to some students and a high-quality education to others.

A number of characteristics are associated with high-quality programs. First, a high-quality offering is one that challenges students to do their best, that enables them to succeed, academically or vocationally, to a

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and W. Norton Grubb, American Education and Vocationalism, A Documentary History, 1870-1970, (New York, Teachers College Press, 1974), #1-50 and Lawrence Cremin, The Transformation of the School, Progressivism in American Education, 1876-1957 (New York: Knopf, 1961). Cohen's description of the four curricula is largely a restatement of proposals originally put forward in Cardinal Principles of Secondary Education, a 1918 National Education Association report that is widely credited with playing a major role in shaping the organization and content of 20th-century secondary education.

[6]Charles Benson noted this concern in his essay "Access to Quality Vocational Education," Design Papers for the National Assessment of Vocational Education (Washington, D.C.: Department of Education, 1987), p II-6, II-10.

[7]Ibid.

greater degree than had they not taken the course or program. In occupationally specific programs, high-quality offerings train for jobs that are likely to be available, are worth having (on the basis of compensation, status, likelihood of leading to a career, or other qualities) and might not be obtainable without the training. Previous research suggests that the students who reap economic rewards from vocational training are those who complete a logical sequence of courses rather than taking unrelated courses, so a high-quality program may also be one that demands a systematic course of study. Some people have argued that high-quality programs are more likely to occur in specialized than in general-purpose schools (e.g., area vocational schools as opposed to comprehensive high schools), but it remains to be seen whether this is the case. Establishing whether disadvantaged students have unequal access to programs is the goal of several parts of the National Assessment. (See the descriptions of studies in Part II.)

What is currently known about access? Current knowledge about the extent to which disadvantaged students have unequal access to vocational offerings is based almost entirely on aggregate information about the economic and employment conditions of disadvantaged persons and on extremely limited information about the nature and effects of schooling. There is surprisingly little solid evidence about either the enrollment patterns or the relative effects of vocational and academic education for any students and especially for disadvantaged students. And there is almost no information on differential access to high-quality programs. As a result, the National Assessment is conducting extensive new research to assess participation in vocational and academic training and consequences in terms of labor market outcomes.

Current information on the extent of differential access is unclear. Initial NAVE research described in the previous chapter reveals that, overall, blacks and whites enroll in vocational classes at about the same rate. Students in all but the top-ability quartile also enroll in vocational education at roughly similar rates.[8] Previous research has suggested that women who enroll in business and office programs tend to earn more

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[8]Tabulations from the High School and Beyond Sophomore Cohort (transcript data for the high school class of 1982).

than other women who do not go on to college.[9] Business and office programs are traditional offerings to which disadvantaged students already have considerable access. With some exceptions, it appears that whether a student takes a complementary sequence of vocational courses is more important in raising income than what the program is in which the student enrolls. Currently little is known about differences in the mix of courses taken by students of different races or class.[10]

The view that access to high-quality programs is restricted is supported by the work of Jeannie Oakes. Oakes examined secondary vocational education in 25 schools and found that while the overall emphasis on vocational instruction was about the same, the vocational courses available and the ways in which instruction was delivered differed considerably between schools attended primarily by white and by non-white students.[11]

Findings such as these suggest additional research questions relevant to understanding the specific problems of disadvantaged persons in vocational education. Some of the issues to which NAVE will pay particular attention will be whether minorities or persons with low academic achievement are more or less likely than others to enroll in systematic vocational programs or sets of courses; what courses are likely to be forgone when a student enrolls in vocational education and with what potential effect on earnings; and whether participation in vocational education has a significant positive effect on achievement, earnings, and employment. Until this information is available, there are only unproved hypotheses about the nature of the problems the disadvantaged face in secondary vocational education.

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[9]Robert Meyer, "An Economic Analysis of High School Vocational Education," in The Federal Role in Vocational Education, Special Report #39, National Commission for Employment Policy (Washington, D.C.: U.S. Government Printing Office, 1982).

[10]Paul Campbell et. al., Outcomes of Vocational Education for Women, Minorities, the Handicapped, and the Poor, Columbus, Ohio, National Center for Research in Vocational Education (1986).

[11]Jeannie Oakes, "Limiting Opportunity: Student Race and Curricular Differences in Secondary Vocational Education," American Journal of Education, May, 1983).

Issues at the Postsecondary Level

Knowledge about the problems of disadvantaged persons in vocational education after they leave high school is also limited. Thus far there is little solid information on who participates and what the effects of participation are, although NAVE studies are designed to add to current knowledge significantly.

In two important ways, postsecondary education differs from secondary education. First, persons who are least academically capable are less likely than others to be enrolled in any program (except those supported by the Job Training Partnership Act.)[12] Second, economic disadvantage may have direct effects on participation, because enrollment in any postsecondary program may be conditional on being able to support one's studies (and possibly to forgo income). Yet blacks are generally more likely to participate in postsecondary education than whites with similar economic characteristics, suggesting that economic considerations may lead to different enrollment decisions in different subgroups of disadvantaged postsecondary students.[13]

Added to concerns about the quality of offerings at the postsecondary level is the problem of institutional segregation and differential job access. Critics of the situation have argued that although the poor and minorities may obtain training, their experiences are different from those of other students. Not only may some of the training programs established exclusively for the disadvantaged and supported by federal funds offer inferior training, but they may inadvertently stigmatize enrollees so that program completion does not lead to jobs.[14] Also, it is possible that compared with other groups, the poor and minorities need greater access to

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[12]Robert H. Meyer and David A. Wise, "High School Preparation and Early Labor Force Experience," The Youth Labor Market Problem: Its Nature, Causes and Consequences, edited by Richard B. Freeman and David A. Wise (Chicago: National Bureau of Economic Research, 1982), pp 277-348.

[13]Ibid.

[14]Paul Peterson and Barry Rabe, "Coordination of Vocational Education and Manpower Training Programs," Design Papers of the National Assessment of Vocational Education, (Washington,D.C.: U.S. Department of Education, 1987).

formal education as a way of compensating for possible job discrimination; yet it appears that persons in blue-collar jobs are less likely than other workers to have opportunities for formal on-the-job training.[15] Again, further studies of the National Assessment on participation in and effects of postsecondary vocational education will help clarify patterns of enrollment, completion, and employment.

PROVISIONS OF THE PERKINS ACT THAT APPLY TO DISADVANTAGED PERSONS

The Perkins Act is a product of current understanding about the needs of disadvantaged students in vocational education and the effects of previous federal efforts to serve these students. The act is both general and highly specific. Perhaps in part because there is so little solid information about which disadvantaged students are most in need of services, the act adopts a broad definition of disadvantage and leaves decisions about how many students to serve almost entirely to local officials. The only requirements are that students who get services be economically disadvantaged or poor academic performers and that they need the services to succeed in vocational education. Districts and institutions are free to concentrate federal resources on a few students or spread the funds among many.

At the same time, the Perkins Act is more specific than previous legislation about the conditions for spending the set-aside funds. Funds may be used solely to pay for up to half of the excess costs of services, no matter what the setting. Furthermore, the act establishes an intrastate formula for distributing federal dollars to ensure that set-aside resources go to school districts and postsecondary institutions in which the disadvantaged are located. Finally, a separate provision in the legislation specifies a set of services that must be provided to all disadvantaged students enrolled in vocational education in districts and institutions

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[15]Lee A. Lillard and Hong W. Tan, Private Sector Training: Who Gets It and What Are its Effects? (Santa Monica, CA: Rand Corporation 1986).

receiving these funds, regardless of whether all these students are served under the act.[16]

But in defining the population in need of service, establishing what services may be supported under the excess-cost provisions, spelling out provisions of the intrastate formula, defining required services, and mandating equal access, the act leaves a series of unanswered questions about federal direction and local response. Some are questions that were raised about previous federal vocational (and other education) legislation; others are new questions. Although no law is unambiguous and problematic elements often provide opportunities for local initiative, there may also be instances in which lack of clarity or poorly defined provisions result in ineffective or wasted use of resources. This section explores a number of questions that may have effects--intended, unintended, or perhaps even perverse--on the ways in which the law is implemented.

The Definition of "Disadvantaged" in the Perkins Act

The Perkins Act contains a broad definition of disadvantaged persons. It includes secondary and postsecondary students who live in poor families; are migrants; have limited English proficiency (LEP); have dropped out of school or may drop out; or have low scores on standardized tests, have poor grades, or demonstrate in some other manner a failure to attain minimal academic competencies. To be eligible for services, however, students must also "require special services and assistance in order to enable them to succeed in vocational education programs." [title V, part B, section (521)(12).] Although this clause narrows the eligible population somewhat, the definition remains very broad. The act sets no priorities with respect to who among such students should be served, nor does it specify a minimum amount of funds to be spent on any one student.

In addition, the act does not distinguish between secondary and post-secondary students in specifying who is disadvantaged, giving rise to

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[16]The Perkins Act specifies that the services are to be provided to eligible disadvantaged students, but one of the services (assessment) is, in fact, aimed at establishing who is eligible for services. It seems likely that this service should be administered to all disadvantaged students prior to determination of eligibility.

questions about the definition's appropriateness in each sector. For example, it is easy to understand intuitively why secondary students with poor academic performance may need individual assistance to succeed in vocational education. It is less immediately apparent why secondary students who are from poor families but show no academic disadvantage might need special services to succeed at the secondary level. There are a few individual services for the economically disadvantaged that might cost more and make it easier for some small subgroups of economically disadvantaged students to continue in vocational education. One is day care for teenage parents so that they may continue their vocational studies. Economic conditions at home also might force some students to drop out, and a subsidized work-study opportunity might make it possible for them to stay in school. But most needs of the economically disadvantaged would probably involve greater program access as much as individual services.

Does the definition address the problems of disadvantaged persons? If the main problem faced by disadvantaged students is gaining access to high-quality vocational offerings, individual services such as day care or work-study help offset disadvantage only when tied to specific, high-quality programs. The lack of access to programs may be the result of such conditions as distance from good programs, an outright lack of high-quality offerings, bad advice on enrollment choices, or discriminatory entrance requirements. These conditions might not lead to poor individual performance in vocational education or difficulty in staying enrolled in school. But if access is the problem, rectifying these conditions would benefit disadvantaged students greatly.

A second problem in defining who is eligible for service concerns the stipulation that to be eligible, students who are academically or economically disadvantaged, also must require special assistance to succeed in vocational education. This provision emphasizes services to individuals. Local officials sometimes point out that many of the students who are poor performers in academic coursework succeed relatively well in their vocational courses. If Benson is correct in saying that the poor and minorities have more than enough access to low-quality programs, many disadvantaged students may succeed in vocational education because they enroll in courses that do not demand a high level of performance. Because they are

succeeding a literal interpretation of the disadvantage provision might well result in exclusion of such students from services funded by the act.

Currently, funding is earmarked to provide supplementary services to disadvantaged persons regardless of the particular programs or institutions in which these persons enroll. If the problem for disadvantaged persons is that they fail to enroll in vocational education or that they find it difficult to complete programs, this approach is appropriate. But if the problems are ones of access and program quality, they are also institutional problems. To deal with institutional problems, the act would need to earmark resources for services only in institutions or programs that provide high-quality offerings and encourage disadvantaged students to enroll. Federal resources might help pay, for example, for the additional costs of training or tutoring for disadvantaged students who need help to master the difficult or technical material in such programs. The danger in this approach, however, is that students in the weakest programs might be excluded from services, because the programs in which they were enrolled would be unlikely to qualify for additional support.

Although language in the act encourages the improvement of programs for disadvantaged students, there is no particular incentive to do so. There is nothing to encourage funds earmarked for program improvement (a separate part of the act-title II-B) to be used in conjunction with the set-aside for the disadvantaged, to be used for a particular group of eligible students, or to provide services aimed at supporting one type of vocational curriculum as opposed to another.

Furthermore, the definition of "program" is unclear. Federal funds are supposed to support "organized vocational programs" [Section 201 (e)(3)(D)] and so, presumably, the act distinguishes between a program and a single course or a succession of unrelated courses. But the regulations that accompany the act do not support this (or any other) view of what it means to be enrolled in a vocational "program" and hence to be eligible to receive funding under the act. As a result, enrollment in any vocational course seems sufficient to warrant supplementary services.

Postsecondary definitions. At the postsecondary level, there are some additional definitional issues. Because most students who attend post-secondary institutions supported by the act presumably have the academic

ability to complete the work, it seems likely that a relatively large percentage of the funds at this level would be spent on economic assistance in the form of books, supported work, transportation, tuition, or day care. It is also likely that the need for such services would far outstrip the available resources, especially because the supply of students is elastic and the availability of support might induce more students to attend.

At the postsecondary level, the criteria for determining academic disadvantage are relative. It is unlikely that many students who score in the bottom quartile on standardized tests in high school (a criterion for determining eligibility) will enroll in postsecondary institutions likely to be funded under this act, (i.e., community colleges and technical institutes.)[17] Therefore, the act's only eligibility criterion for academic disadvantage appropriate to the postsecondary level is the general statement "failure to meet minimal academic standards." This is a relative notion, leaving open the possibility of widely varying interpretations.

Mainstreamed and Separate Programs

In general, the act's aim is to ensure that the disadvantaged get the same amount of local and state resources as all other students and that the federal dollars, matched by state or local funds, are used solely for the additional costs of services. To accomplish this end, the legislation stipulates the services eligible for federal support in two different types of settings, separate and mainstreamed. Separate settings are ones in which disadvantaged students supported under the act are the only participants or in which the program has an approach or design that distinguishes it from all others. Mainstreamed settings are ones in which disadvantaged students are in the same classes or programs as other students.

Excess costs in the two settings. Different services qualify as excess costs depending on the setting. In a separate program excess costs are the costs of instruction or service beyond those incurred for regular

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[17]Although enrollment rates are not yet available from the NAVE study, preliminary evidence from High School and Beyond indicates that seniors in the bottom quartile have few plans for postsecondary education. See also Meyer and Wise.

students in a similar program. Where eligible disadvantaged and other students share the same course (i.e., a mainstreamed course), excess costs are those that can be attributed solely to services provided for the disadvantaged students in the program. This provision means, for example, that the cost associated with having a small class size in a mainstreamed program is probably not an allowable excess cost, because it cannot be determined that only the disadvantaged students benefit from the service. The cost of employing a teacher's aide may be considered an excess cost in a mainstreamed setting provided the aide works only with the disadvantaged students. These rules are spelled out in the regulations that accompany the act.

A number of researchers and school administrators have argued that such restrictions encourage the maintenance of separate programs for disadvantaged students because it is easier to make claims for excess costs when the demonstration of compliance depends solely on spending additional dollars rather than on showing that one set of students is getting services that are not available to others in the same classroom.[18] The excess cost requirement may also encourage the provision of noninstructional rather than instructional services because it is easier to demonstrate (and justify) that other students are not getting particular noninstructional services. The excess cost provisions appear to be adopted largely from federal compensatory education legislation.

Are these distinctions applicable for the disadvantaged? The terms separate and mainstreamed are commonly used in describing education for the handicapped. In education for the handicapped, separate classes are classes composed entirely of handicapped children, whereas mainstreamed classes are ones in which handicapped students participate along with everyone else. It is widely held that, when feasible, mainstreamed classes are desirable

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[18]See, for example, TEM Associates and MPR Associates, Vocational Education Survey of Special Populations, Final Report, report to the Center, for Education Statistics, U.S. Department of Education (Berkeley, 1987), p. 29. See also National Institute of Education, The Vocational Education Study: The Final Report, Chap. VIII, although at the time this study was completed there was a greater incentive to put students in separate programs because all costs of such programs were considered excess costs.

because handicapped students in mainstreamed settings are likely to be exposed to a more challenging program.

Applying this conceptual model to disadvantaged students is problematic, however. First, much of the mainstreamed education offered in poor neighborhoods is, in fact "separate" in that it is effectively separate from the education received by nondisadvantaged students in other neighborhoods or school systems. Even in school districts that bring together students from widely varying economic and social levels, ability groupings for instruction also result in separate classes for students who are academically disadvantaged. Furthermore, in vocational education, different occupational programs may be proxies for ability groupings. Certainly, in education as a whole, students are often encouraged to enroll in educational programs that are unlikely to give them too much difficulty.

In some respects, it is the sheer size of the disadvantaged population in a given program, school, or community that makes it difficult to determine whether a program is separate or mainstreamed. After all, in a school where most students enrolled in vocational education are disadvantaged, does it really matter much that some portion of them are grouped together for instruction that is funded, in part, by the Perkins Act?

Nonetheless, if disadvantaged students have a limited choice of programs because the schools they attend do not offer many program options, or if they are disproportionately enrolled in offerings that do not train them for careers, the appropriate goal may be access to a wider set of offerings. That goal is "mainstreaming" in that disadvantaged students would be enrolled in a set of offerings that reflects the range of offerings available to other students. As occurs when handicapped students gain access to classrooms with nonhandicapped students, such mainstreaming could lead to greater challenge to disadvantaged students and prepare them for better jobs.

The Intrastate Formula and the Allocation of Funds

The intrastate formula was created to deal with some of the major complaints about fund allocation under the 1976 Amendments to the Vocational Education Act. Regulations stemming from that act called on states to construct formulas to allocate funds. Complaints arose that the act had too

many goals to accommodate in any single formula; that some of the act's directions about how to distribute funds were in contradiction to others, resulting in formulas with provisions that canceled each other out; and that even where federal intent was clear, state-developed formulas were failing to direct resources in a manner that Congress intended.[19] In particular, many of the state formulas were failing to direct greater resources to districts and postsecondary institutions with larger numbers of disadvantaged persons.

The intrastate formula in the Perkins Act was intended to make an unambiguous statement about the direction of federal funds to the disadvantaged. It calls for allocating funds in the disadvantaged set-aside based equally on two factors--the number of economically disadvantaged persons enrolled in the district or institution and the number of disadvantaged persons served in vocational education in the preceding year. In addition, funds under the set-aside for the handicapped are to be allocated in part (50 percent) according to the first factor. At least for the third of the federal funds that these two set-asides represent, the Congress saw poorer communities as the major recipients of funds.[20]

Although the formula appears to be simple and direct, its implementation has given rise to issues with implications for services to disadvantaged students. The first major issue concerns dividing up set-aside funds among secondary districts, intermediate districts (such as separately administered area vocational facilities), and postsecondary districts and institutions. Although the Perkins Act does not specify a postsecondary share, many states appear to make a preliminary decision, formally or informally, to divide funds in prearranged amounts among the sectors and then apply the intrastate formula. The result may be disparities between the secondary and postsecondary per-student grants to districts and

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[19]National Institute of Education, The Vocational Education Study: The Final Report, Chap. II.

[20]There is also a requirement to spend more than 50 percent of all funds in economically depressed areas. Although there are some states in which so many places are considered economically depressed that the requirement may mean little, this requirement is further evidence that Congress intended the act to result in a substantial share of resources going to poorer areas.

institutions. Because there are far fewer disadvantaged and handicapped students at the postsecondary level, one possible result is that the typical postsecondary student qualifying for assistance under these set-asides may reap a considerably larger share of resources than a comparable secondary student. In future case studies, NAVE will be examining this issue, as well as the concern expressed by state and local officials that the formula results in giving some districts amounts too small to use effectively.

The act does not specify how districts and institutions should decide which students are to be served with the set-aside funds. There is a provision that funds be spent for students with limited English proficiency at a rate approximating their enrollment rate in vocational education, but otherwise there is no guidance about whether to focus on particular kinds of students (perhaps those in greatest need along some dimension?), or students in particular institutions (those with programs in need of upgrading?), or whether to distribute funds on a first-come first-served basis. Districts and institutions may concentrate or spread resources in almost any manner they see fit. So although the intrastate formula helps in targeting resources, it by no means targets services a priori in the manner that, for example, Educational Consolidation Improvement Act Chapter 1 targets services to particular students. The latitude provided may be an advantage in districts that have a clear plan to determine who needs what kinds of assistance but it may be less effective in other circumstances. Case studies will explore how districts and institutions decide which students to serve and in which schools to provide services.

Supplementary Services

Although the Perkins Act notes a few allowable services, such as counseling and remedial basic skills, it leaves the choice of services to offer to state and local officials. But there are several provisions that could influence the mix of services that local officials select. For example, as explained in the section on mainstreamed and separate programs, the excess-cost provision may encourage administrators to provide services that are clearly identifiable as additional, such as services tangential to instruction.

A second, and potentially important, determinant of what services are offered is embedded in section 204(c). This portion of the act identifies services that shall be provided to each eligible disadvantaged or handicapped student enrolled in vocational education, regardless of whether the student's education is funded, in part, under the Perkins Act. The services are--

- o Assessment of...interests, abilities, and special needs.
- o Special services, including adaptation of curriculum instruction, equipment, and facilities.
- o Guidance, counseling, and career development activities conducted by professionally trained counselors who are associated with the provision of such special services.
- o Counseling services designed to facilitate the transition from school to post-school employment and career opportunities.

This set of services seems to reflect those considered in the development of Individualized Educational Programs for handicapped students, as required under P.L. 94-142. For disadvantaged students enrolled in vocational education, however, section 204(c) is a new requirement.[21] Although some federal and state officials are aware of its potentially enormous effect, the federal government has provided little information on how to interpret section 204(c). State instructions to localities have largely repeated the language of the act.

Because this set of services is mandated for all eligible disadvantaged students, it provides the most direct instruction in the act on how districts and institutions might spend their disadvantaged set-aside dollars. What the list suggests is that services such as assessments and counseling are desirable or preferred. More broadly, it implies that disadvantaged students should be provided with much the same types of

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[21]It is also new for handicapped students enrolled in vocational education in postsecondary institutions that receive funding under the handicapped set-aside, because postsecondary education is not covered in P.L. 94-142.

assistance that are provided to handicapped students (although perhaps not on the same order of magnitude). With the exception of the second listed service, the services described in 204(c) are noninstructional. Rather, they are ancillary services.

It is hard to assess the appropriateness of these services for disadvantaged students because there is little empirical information on their effects. Nor is there much of a conventional literature setting forth appropriate services for disadvantaged students in vocational education. For economically disadvantaged students needing assistance to remain in vocational education, it is particularly difficult to interpret the applicability of this mix of services. It is possible that assessment, for example, might point up the need for economic assistance, but the assessment would be of little benefit if economic assistance not were provided. For the academically disadvantaged, the emphasis on such services as testing and counseling appears to be more appropriate.[22] Three of the four services in section 204(c) are not aimed at direct instructional assistance, however.

Equal Access Provisions

Section 204 also contains another key provision, in much the same form as it was written in previous vocational education legislation. That provision is equal access:

> The State board shall...provide assurances that--
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> (1) Equal access will be provided to handicapped and disadvantaged individuals in recruitment, enrollment, and placement activities;
>
> (2) Equal access will be provided to handicapped and disadvantaged individuals to the full range of vocational programs

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[22]In a review of what is known about the effectiveness of various interventions for the disadvantaged, Phelps concluded, "There seems to be little empirical evidence, for example, to support the provision of assessment, support services, and counseling for every handicapped and disadvantaged student at the secondary level as specified in Section 203 [sic] of the Perkins Act." Phelps noted, however, that a sizable literature has grown up around providing such services for the handicapped, creating support for providing such services to both groups. Phelps, "Evaluating the Special Populations and Equity Provisions of Federal Vocational Education Legislation," p. II-65.

available to nonhandicapped and nondisadvantaged individuals, including occupationally specific courses of study, cooperative education, and apprenticeship programs.

Little is currently known about what has been done, either nationally or at the state level, to spell out the meaning of this provision. Nor is it immediately apparent what equal access means in the context of vocational education. The provision appears to call on states to make sure, for example, that entrance requirements or prerequisites for programs are fair and do not discriminate. But as noted previously, even if the problem of the disadvantaged is limited access to high-quality programs, the problem may have to do with more than discrimination per se. At the secondary level, geographic access may be a serious problem, and at the postsecondary level, students may not have the resources to attend or may make poor decisions about which programs will best prepare them for jobs. The equal access provision does not appear to deal with such problems.

IMPLEMENTATION OF PROVISIONS FOR DISADVANTAGED PERSONS

This section explores briefly how issues discussed in the previous sections are reflected in local patterns of vocational education organization and practice. We shall do this by describing some of the initial data from our preliminary set of case studies of Perkins implementation. The purpose of this section is to further highlight some of the issues raised in the earlier sections of the chapter. Please keep in mind that this section of the report is based on an early round of local studies. The specific questions this section discusses are the following--

- To what extent do services occur in mainstreamed or in separate programs?
- What kinds of services are provided?
- Which disadvantaged students are most likely to receive assistance?
- What problems, if any, have arisen in expending resources?

The information in this section is derived primarily from preliminary case studies of Perkins implementation conducted in 18 communities located in five states. The fieldwork was conducted during the 1986-87 school year by researchers living in those five states and familiar with vocational education. In each of the states, NAVE selected three to four communities based on population size, demographic and socioeconomic mix, and geographic diversity. The studies focused on describing (1) the overall practice of vocational education in the community at the secondary and postsecondary levels, (2) the services delivered to special populations overall and specifically with Perkins support, (3) program improvement activities and the role of the legislation, and (4) the relationship between economic conditions and vocational education. A case study was prepared for each site based on a broad protocol. Some additional information from the study is reported in the first chapter of this report. Each of the issues discussed here will be explored further in the main round of case studies and in the national survey of school districts and postsecondary institutions described in Part II. The views expressed here may well change as NAVE generates additional state and local information.

Where Are Vocational Services Delivered?

Settings for vocational instruction at the secondary level. In the majority of the 18 communities studied to date, disadvantaged secondary students who receive services under this act appear to receive their vocational instruction in what would normally be called mainstreamed settings (as defined by local personnel). In other words, they are not enrolled in vocational classes in which all the students are economically or academically disadvantaged and require additional assistance to succeed in vocational education.[23] All the students in a mainstreamed class may, nonetheless, be economically or academically disadvantaged in a larger sense because the school is located in a poor community, because students are grouped by ability, or because students may select programs, in part, on an assessment of their likely ability to complete them.

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[23]Or, to put it another way, they are not in classes that, under the 1976 amendments, would have qualified to have drawn half of their total support from federal funds.

In the five states visited, the choice of mainstreamed or separate classrooms appears to vary systematically by state. In two of the states, some of the communities spend their set-aside funds for the disadvantaged on vocational classes in which most or all of the students qualified for support under the disadvantaged set-aside. This is not to say that all disadvantaged students who qualify for assistance in those districts are grouped in separate classes, but those that receive service funded under the Perkins Act are in separate classes.

The role of the Perkins Act. None of the communities has changed from a separate to a mainstreamed setting for vocational education for disadvantaged students in the past two years. If federal rules were a powerful determinant of the choice of separate or mainstreamed setting, one might have expected to see such change because the federal rules were changed so that only half of the additional costs of separate settings rather than half of the total costs could be supported with federal funds. It should be noted, however, that the study did not delve deeply into the history of programs that had been in existence for many years. As a result, we do not know if some of these separate programs for disadvantaged students were originally established because half of their full costs were payable out of federal funds.

Where vocational instruction is separate, it is usually one part of the program of an alternative school or school-within-a-school for students who are considered potential dropouts, have academic difficulties, or are behavior problems. There are also separate programs for dropouts who have returned to school. The vocational classes are often a part of full-day programs. These schools or programs seem to run the gamut from high-quality efforts to engage alienated students and keep them from dropping out, to continuation schools for troublemakers and juvenile delinquents. In one state there have been concerns for some years about school-within-a-school programs for low-achieving and disruptive students, but the Perkins Act, in particular, has helped maintain the schools because they are capable of being supported with the set-aside for the disadvantaged. These schools provide vocational instruction in a very limited set of occupational fields. In another state, there has been a statewide initiative to establish skills centers and other alternatives to encourage dropouts to return to school.

The programs are located at area vocational facilities that offer a wide range of occupational choices, are supported in part with Perkins funds, and are generally considered to be of high quality.

In most, if not all, of the districts, teachers and administrators interviewed to date find the idea of separating out students for vocational education based on economic disadvantage to be unjustified. Even with respect to students with academic difficulties, creating separate vocational classrooms for students funded under the act is not popular in many communities. One reason is cost. First, the federal funds will pay only a small portion (half of excess costs), so there is not enough of a financial incentive to operate separate programs that may be costly. Second, in some districts, total enrollments in vocational education have declined, so that further separating out disadvantaged students would mean that class size would be reduced for all students. This further reduction might make it impossible to justify the continuation of some programs. Perhaps most important, the services supported with set-aside funds for the disadvantaged often do not occur in vocational classrooms, so there is no financial incentive for separate vocational education classes.

In short, the early NAVE studies do not reveal a strong bias toward separating disadvantaged students for vocational instruction. Nor does there appear to have been a change in offerings since the federal rules were changed to remove the incentive for separate settings. Where there are other reasons that students are separated for instruction, however, those classes are often identified by local officials as places that will qualify for funding under the disadvantaged set-aside, provided they incur excess costs.

Separate classes of disadvantaged students are considerably more likely to occur in the delivery of federally supported services that are supplementary to vocational instruction, most commonly, remedial English and mathematics. In these instances, vocational instruction is mainstreamed (and receives no federal support), but federally supported supplemental services are offered in another class or in a nonclassroom grouping composed entirely of students receiving the service.

In one community, students who are enrolled in the half-day area vocational school and who have been identified as performing poorly in

English attend separate English classes in their home high school. Their English class size is reduced, and they have new books and other materials, so the program generates excess costs. The determinants of service are difficulty in English plus enrollment in vocational education. The content of instruction is not related to vocational classwork. In this instance, administrators told the teacher not to use the books and materials with other classes, instructions she considers absurd and ignores.

Any time it makes good sense to offer a supplementary service to a group of students who qualify for assistance (e.g., remedial instruction in basic skills or a few sessions after school on employability skills), that service is separating out those students. So although their vocational instruction may be mainstreamed, it may also be said that the same students are in "separate" programs, tutorials, or counseling sessions. There does not appear to be much way out of this type of separateness, nor does it appear that this type of separate instruction or assistance is inferior or otherwise undesirable. It is hard to understand how some such services can take place anywhere but in "separate" settings.

Settings for vocational instruction at the postsecondary level. In the communities studied, where set-aside funds for the disadvantaged are received by postsecondary institutions, vocational instruction takes place in mainstreamed classes. Most commonly, the funds are used to provide assistance to improve basic skills in learning laboratories or comparable programs set up to help students having academic or basic skills difficulties. The mainstreamed vocational instruction of students funded in part through Perkins funds was sometimes in contrast to the practices carried out by the same institution under the JTPA program. Students supported through JTPA funds are much more likely to be in separate vocational instruction programs, although they might make use of the same remedial and ancillary services as students funded under the Perkins Act.

Who Gets Assistance?

The act identifies both economically and academically disadvantaged persons as qualifying for assistance. Among the academically disadvantaged, particular attention is drawn in the legislation to students with limited English proficiency, dropouts, and potential dropouts. The

important consideration in providing services to any of these groups, however, is that they need additional assistance to succeed in vocational education. It seems possible that almost all Limited English Proficient persons enrolled in vocational education might require additional assistance, because their language limitations would presumably affect their overall ability to learn. It is considerably less likely, however, that all the persons in the other academically disadvantaged categories would require assistance. In particular, it would be difficult to identify which students would be likely to drop out. As discussed earlier, neither the act nor its regulations specifies the proportion of such persons that should receive assistance or identifies criteria for selecting among persons who qualify for assistance. These decisions are left to local officials.

Overall criteria for determining who receives supplementary services. In case studies completed to date, it appears that almost all the secondary and postsecondary set-aside funds for the disadvantaged are used to provide services to persons who are academically disadvantaged. Such persons are identified either through formal criteria, such as scores on standardized tests, or informally through teachers' identification of students who would benefit from some additional assistance. Although the extent of economic disadvantage among the student body is measured in applying the intrastate formula for allocation of disadvantaged set-aside funds, economic disadvantage is generally not considered a basis for service. (There was one program for teen parents that could be considered a form of economic assistance.) At the secondary level, many administrators have difficulty understanding how economic disadvantage without academic difficulties qualifies students for the services.

The situation at the postsecondary level is similar--set-aside funds for the disadvantaged are used largely to provide services to persons with academic difficulties. Only a few of the institutions visited spend set-aside funds for the disadvantaged on economic assistance, which is surprising because economic disadvantage is undoubtedly an important reason for not attending or failing to complete postsecondary vocational programs. However, at the postsecondary level, Pell grants and other subsidies more extensive than Perkins funds are generally viewed as the appropriate way to provide economic assistance.

There were only a few postsecondary institutions in the case studies where economic disadvantage is a criterion for services. In those institutions, disadvantaged set-aside funds were used for temporary tuition assistance, stipends, day care, transportation, and other such services. It was common, however, to find funds under other parts of the Perkins Act, especially the single-parent homemaker set-aside, used for these services. This suggests that postsecondary officials are not aware of the possible uses of disadvantaged set-aside funds for economically disadvantaged students, or that they are unwilling to match the costs of economic assistance, which would be required if funds from the disadvantaged set-aside were used for this purpose.[24] Officials seem most willing to spend disadvantaged set-aside funds on the kinds of programmatic services, such as remedial help, that the institutions normally provide.

Determining the specific disadvantaged students who should be served. The study has uncovered few district-to-district differences in how local officials determine who is eligible for service. Beyond overall academic disadvantage, difficulty in completing vocational courses is sometimes a criterion, but it is problematic because teachers may have already geared the pace of instruction to the student, or the student may have been placed in a program because he or she was believed likely to complete it. Some districts and most postsecondary institutions simply define all students who are having academic difficulties and are taking vocational courses as eligible for services. In fact, some local and state officials believe that this approach is what the act prescribes. Defining eligible students in this manner at the secondary level makes it possible, for example, to establish ability groupings of vocational students for English or math classes.

Sometimes, however, confusion in deciding eligibility does occur. For example, in a city using its set-aside funds for the disadvantaged explicitly to meet the section 204(c) requirements, district officials told vocational teachers which of their students were economically disadvantaged and then asked the teachers which of those students could benefit from a

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[24]Single parent and homemaker funds do not require a 50-50 match and can pay for all the costs of services, not just excess costs.

little additional assistance. Students who were selected by the teachers were then excused from their vocational classes for a few days to take a battery of interest inventories and to learn about careers. No one seemed quite sure of the justification for the program (beyond Section 204[c]), and doubts were expressed about the advisability of taking students out of vocational education classes to get the career exploration services.

Postsecondary institutions appear to use overall academic ability, as measured by standardized tests or grade point average, as the basis for service. There is little evidence that difficulty in completing vocational education is considered a criterion--only that the student is enrolled in an occupational program. Postsecondary institutions appear to be sufficiently demand driven that they create courses and programs around students' needs and requests, so once again it is likely that courses are designed in keeping with the academic levels of the students. Institutions are presumably not actively recruiting or directing students to programs in which they would be expected to experience difficulty. Students are generally classified by the colleges as vocational when the students' declared goal is to complete an occupational program.

Only a few secondary school districts visited had sufficient Limited English Proficient (LEP) students to operate identifiable programs. There was one instance of a separate instructional and ancillary service program for LEP students, including smaller class size, tutoring in the primary language, employability skill counseling, and language labs. The scope of this program appears to have been reduced under the Perkins Act, because the incentive for separate programs was reduced and the program chose to maintain separate instruction. In most districts, however, services for LEP students occur outside vocational instruction, and bring LEP students together in language laboratories or in small groups for tutoring. At the postsecondary level there are separate vocational programs for LEP students under the federal Bilingual Vocational Training program funded under Perkins Title IV, but none are located in the districts or institutions visited.

Although the districts operate a wide range of special programs for potential dropouts or for persons who had dropped out but were induced to reenter, in only two of the states do funds from the disadvantaged set-aside figure heavily into the support of those programs. This result is

surprising, given the current interest in alternative programs for disadvantaged students. For example, one large school district that is having difficulty spending its set-aside for the disadvantaged is also operating a multicampus school-within-a-school program for potential dropouts with a vocational theme, Preparing for Careers. The program combines academic and vocational education and is funded entirely from local resources. There is great interest in expanding the program and a shortage of funds to do so, yet no interest in using Perkins funds to do so. Local administrators attribute the lack of interest in federal funds to the unreliability of federal support, an issue that appeared to have more to do with the state allocation process than the stability of federal funds.

The Services Provided with Funds from the Disadvantaged Set-aside

In the five states visited, at both the secondary and postsecondary levels, the bulk of services purchased with set-aside funds for the disadvantaged may be characterized as ancillary to vocational instruction, that is, designed to supplement vocational instruction with assistance of varying types. At the secondary school level, the most common services are counseling, assessment, diagnosis, testing, and sessions to foster "employability" skills. In addition to ancillary services, there is a considerable amount of remedial instruction in basic skills, especially math and English. Some remediation takes place in separate classes, and some is provided as tutoring outside class. Sites in one state use disadvantaged set-aside funds for additional staff in a program for single parents.

At the postsecondary level the situation is generally similar, with almost all support under the set-aside used for services offered outside vocational classes. Learning laboratories and tutors offering remediation in basic skills account for major expenditures. Counseling, diagnosis, and testing are also common. A few sites use disadvantaged set-aside funds for financial aid or for day care services. To the extent that support is for instruction, it is used to purchase equipment and instructional materials in a few institutions.

The study found little interest, at the secondary or postsecondary level, in using the set-aside for the disadvantaged as part of a larger vocational program improvement effort. There were few instances, for

example, where districts or institutions created new offerings for disadvantaged students and used the disadvantaged set-aside to provide smaller classes or other instructional adaptation. Nor were there many cases of encouraging students already enrolled in vocational courses to enroll in different or more challenging offerings, using the set-aside funds to provide tutoring or other supplements.[25] The possible exceptions are alternative school programs.

In fact, in many cases there do not appear to be strong links between the services provided to disadvantaged students under the Perkins set-aside and their vocational studies. In some cases, enrollment in vocational education serves solely as an eligibility criterion, a way of deciding who gets testing, counseling, or remedial academic instruction. At the secondary level, Perkins-funded remedial instruction and vocational courses often take place at different schools. One school system had established as a goal for 1986-87 that the remedial academic instructors in the comprehensive high schools and the vocational instructors in the area school should speak with one another at least twice a year! In view of the requirement that set-aside funds for the disadvantaged be spent solely for excess costs, the section 204(c) mandate, and the wider familiarity ancillary with services for the handicapped, it is perhaps not surprising that the links are not always strong.

The ways in which the set-aside funds for the disadvantaged are used, especially when they are used for services with few direct links to vocational instruction, may help explain why some officials are confused about the reasons for the set-aside or express skepticism about its fairness. Some local vocational administrators expressed the view that there was little justification for providing the particular set of services they were offering to disadvantaged but not to other students. (Ironically, offering the same services to other students jeopardizes their federal support.) Some services were described as being provided to the disadvantaged solely because federal funds were available to pay half the costs or because of the section 204(c) requirement. Many officials view federal funding as

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[25] In other words, students who may not have needed assistance in existing, low-level offerings are not being encouraged to try something more difficult and, hence, became students in need of additional services.

unreliable, and do not wish to use it for activities so important that the schools might end up having to continue them with local funds if federal support ceased. In short, because the local officials do not see the services as part of a larger, locally developed plan to improve the access of disadvantaged students to higher-quality vocational programs or to provide more challenging vocational offerings, they tend to view services delivered under this set-aside as just another way to offer a little more counseling, remediation, or testing to poorly performing students.

Problems in Spending Funds from the Disadvantaged Set-aside: A Tale of Two Districts

School districts in at least two of the larger cities that were visited have had difficulty in spending funds to which they were entitled under the set-aside for the disadvantaged. In the first year or two of the Perkins Act, these cities returned a considerable portion of their allocation--a third to a half--to the state. These cities have high concentrations of economically disadvantaged persons and students performing below grade level, so the return of funds is all the more disappointing. Understanding why these cities encountered difficulties can be useful in assessing whether the act is working as envisaged or whether it is providing perverse incentives.

For these districts, the difference between the Perkins Act and predecessor legislation is that under the new act the districts are required to provide considerable additional resources. Because they enroll large numbers of economically disadvantaged students, they received more funds under the intrastate formula than they received under the previous act. The 1976 amendments allowed the use of federal funds to pay for 50 percent of the costs of services in separate settings, but the new act allows only the excess costs to be paid out of federal funds. Because these districts run a number of separate instructional programs, they are forced to provide additional resources to cover all but the costs in excess of costs for

regular students.[26] Initially, the states in which these cities are located did not match the disadvantaged set-aside, leaving it entirely to the districts to generate the additional funds.

Vocational officials in these cities described their school systems as financially "strapped" and unwilling to put scarce resources into vocational education. Although vocational education may have been a priority in the past, more recently it has taken a backseat to other concerns, such as academic reform, school disruption, and the threat or the reality of teacher strikes. Some district leaders have mixed feelings about vocational education as a way out of poverty and into the mainstream and are unenthusiastic about the programs overall.

In both communities, as in many of those visited, vocational services supported with federal funds tend to be concentrated in a few institutions. These institutions may be alternative schools, full-day vocational high schools, or area vocational facilities. Many of these vocational facilities are also magnet schools, so a substantial percentage of students are not disadvantaged. Students in vocational programs in comprehensive high schools are generally not the beneficiaries of federally supported services.

At first, it appeared that there was no way that this small number of mostly area schools could justify enough additional services to absorb both the additional federal and local matching funds. Over time, however, both cities found ways to absorb additional funds and meet match requirements, returning smaller amounts of money.

In one case, the state shifted funds that it had previously spent for other purposes to meet part of the match requirement, and the city did the same. In this district it appears that the federal funds are still being spent in a very few institutions. The other city has designated the salaries of teachers in the programs, the state share of teacher retirement, and additional in-kind contributions as its match of excess costs. This district uses a share of the additional funds to supplement offerings in

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26 In addition, these communities may have been beneficiaries of a small additional categorical program in the 1976 amendments that provided help to urban areas with high concentrations of disadvantaged students, paying all costs, not just those in excess of regular per pupil expenditures.

comprehensive high schools, seeking ways to provide a wide range of job readiness services during and after school hours. The emphasis is on counseling programs for transitions to careers, and tutoring.

In both these instances, it can be argued that the set-aside for the disadvantaged has generated additional revenues and programs for disadvantaged students. Over time, not only have federal funds been spent on the excess costs of services to disadvantaged students, but additional state and local resources have been directed to the same ends. Some new programs have been started. Because substantial new funds are now available through the intrastate formula, one district was able to look beyond the small number of full-day and area facilities that had been the beneficiaries of previous assistance. Comprehensive high schools are now the scene of new supplemental services, during and after school. Initially, it appeared that the disadvantaged set-aside was operating perversely, resulting in the return of funds to the state by a large district in great need. Over time, however, officials have come to use the set-aside to advantage--to obtain additional local and state resources. In future case studies NAVE will see how well the process has worked in other communities with comparable problems, and will pay particular attention to why officials in districts or institutions may elect to decline funding altogether.

QUESTIONS FOR THE IMPLEMENTATION STUDY

On the basis of the preliminary data and a priori concerns about the legislation, NAVE has identified questions to pursue in the upcoming round of field research. Through surveys and case studies planned for the coming year, NAVE will focus on the following questions:

1. How do local and state officials define the problems of disadvantaged students in vocational education and attempt to meet them? This question will be addressed by describing the wide range of offerings--both those supported in part with federal funds and those undertaken without federal support. As we noted previously, districts and institutions are conducting a wide range of activities, only a portion of which receive federal funding. Those activities, and the rationales for them, will help us describe the state of the art in serving this population and its sub-

groups through vocational education. Particular attention will be paid to describing the settings in which services are provided (separate classes, mainstreamed classes, type of institution, etc.), the definition of the target population, the ways in which priorities in serving the population are established, the specific programs and services offered (instructional vs. noninstructional, instructional vs. ancillary) and their expected outcomes, evaluations or other assessments, sources of support, and per pupil costs.

2. Has the Perkins Act enhanced the opportunities for disadvantaged students in vocational education? Are there programs that have been started or expanded as a result of the act? Has the removal of the incentive to serve students in separate programs made a difference in where services are provided? Has the addition of section 204(c) resulted in any change in the mix of offerings? Does the stipulation that disadvantaged students must meet an academic or economic requirement make a difference? Do districts and institutions combine various sources of Perkins funds to enhance offerings for the disadvantaged? In short, does the act provide an incentive for districts to provide additional services, and if so, what types of services?

3. Among the various sources of influence on practice, how critical is the Perkins Act? What are the major determinants of whether a district or institution offers special services for disadvantaged students? How important are the additional federal funds and state-local match in determining whether services are offered? What is the response to section 204(c)?

4. How do state, district, and institutional officials decide which services to offer, which students to serve, and under what conditions to provide services? Where do they turn for advice on whether to offer services in comprehensive high schools or in special-purpose institutions? To what extent do compensatory education or other models of services for the disadvantaged play a role in determining the content or organization of special vocational services? How do officials decide among competing claims on funds?

5. How have the equal access provisions been interpreted and implemented? What guidance has been provided to districts and postsecondary

institutions to ensure that barriers such as geography, finances, prerequisites, and faulty or incomplete knowledge of options may be overcome? What assessments of such efforts have been undertaken?

6. Have there been perverse or other unintended effects from the match provision with respect to excess costs? Although there have been many claims that the provision is a burden, it can be argued that Congress intended to shift resources and that districts and institutions are feeling that intent. It is important to investigate this question in communities that have experienced difficulty with the provision before reaching any conclusion. Do some districts and institutions decide to reject funding under the set-aside because the amount to which they are entitled is small, they do not want to provide additional services for disadvantaged students, they do not wish to implement 204(c), or for other reasons?

7. Finally, although it is not the exclusive purview of the Perkins implementation study, there is the larger question of what is a high-quality offering for the disadvantaged. To what extent may such programs be defined in terms of these characteristics (or others):

- The extent to which students are challenged to learn to their potential.
- The jobs for which they train (their status, their compensation, and their likelihood of leading to a career or to additional training).
- The content of instruction (academic or vocational, occupationally specific or general).
- The mix of courses taken (logical sequence or unrelated).
- The mix of students who attend.
- The settings in which instruction is offered.

The National Assessment will approach these issues through descriptions of programs that are identified as exceptionally good in working with disadvantaged students and students in general, as well as through an analysis of longitudinal data sets on youth.

Part II

PROJECT PROFILES

Chapter 3

IMPLEMENTATION OF THE PERKINS ACT

The first major area of research in the National Assessment is the implementation of the Perkins Act at both the secondary and the postsecondary levels. The research has been designed to answer two broad questions:

1. What have been the effects of the Perkins Act on the practice of vocational education in secondary and postsecondary institutions?
2. What is the role of the Perkins Act, in relation to other influences, in serving special populations and carrying out the types of program improvement envisaged in the act?

To answer these broad questions, five closely interrelated studies are being conducted. The research responds directly to items in the congressional mandate on the vocational education services provided to special populations, the improvement of vocational education programs, the coordination of vocational education with employment and training activities, the coordination of vocational education for handicapped and disadvantaged persons, and the assessment activities of states.

EXPLORATORY CASE STUDIES: THE NINE-STATE STUDY

The first of these five projects started in 1985, prior to the initiation of NAVE. This project began with case studies of the state administration of the Perkins Act in nine states during the act's first full year, followed by 18 community-level studies in five of those states. NAVE has used this project to explore issues concerning Perkins implementation and alternative designs for the other studies in this research area.

Issues

In the state administration studies conducted in 1986, the research emphasis was on documenting the adjustment of states to new or altered

provisions in the Perkins Act, such as the 7 percent cap on the use of federal funds for state administration, the development of state plans, and the role of the sex-equity coordinator. In the local case studies, conducted in early 1987, the emphasis was on:

1. Describing the implementation of specific Perkins provisions, including the set-asides for disadvantaged and handicapped persons, for special populations, and for program improvement.
2. Examining the full range of services for special populations and efforts at program improvement, identifying where the act has provided incentives or barriers to high-quality offerings.
3. Identifying the changes that have taken place in the provision of services to special populations over time and the role of federal policy in such changes.

Part I of this interim report presents preliminary findings from the local case studies.

SURVEY OF STATE VOCATIONAL EDUCATION POLICY

The National Assessment is conducting a one-page survey of state policy designed to provide the following descriptive information for all 50 states:

1. The mechanisms used to distribute funds under the Perkins Act (i.e., formulas, competitions, or other discretionary means) and state restrictions on grants.
2. The percentage allocation of funds between secondary and postsecondary education, and the process of deciding on an allocation.
3. The availability of state funds earmarked for secondary vocational education.
4. State mandates with respect to units and course requirements for secondary vocational education.

This survey is being carried out as a Fast Response Survey of the Center for Education Statistics (CES).

SURVEY OF LOCAL PRACTICE AND POLICY

The third study is a survey of the implementation of the Perkins Act at the secondary and postsecondary levels. Except for a few cases, the unit of analysis at the secondary level is the school district, and at the postsecondary level, it is the institution.

Issues

The study is designed to address the following questions:

1. What funds have eligible recipients received under the act and to what uses have these funds been put?
2. What is the size of vocational education (in relation to all education) in each district or postsecondary institution surveyed, and what is the importance of federal funds relative to state and local funds?
3. How do districts and institutions define program improvement, and what kinds of improvements or other changes have taken place in the past few years?
4. To what extent have the districts and institutions adopted innovations that improve administration, update instructional techniques, attract new students, revise curricula, promote articulation or other forms of coordination, and establish links with employers?

Methods

The survey will be conducted using a sample of 1,500 school districts and 500 postsecondary institutions in 18 states, with states drawn to be nationally representative. It will be conducted through a mail questionnaire.

CASE STUDIES OF PERKINS ACT IMPLEMENTATION IN STATES AND LOCALITIES

A series of 27 case studies of local communities (including their school districts and postsecondary institutions) and nine state-level case studies will expand on the issues identified in the exploratory case studies and the state and local surveys.

Issues

One main goal is to develop detailed descriptive information on how vocational education is serving the educational needs of the disadvantaged, the handicapped, and other special populations identified in the Perkins Act. The National Assessment will describe which special populations are served in vocational education, the settings in which they are served (mainstreamed or separate programs, comprehensive high schools or area vocational schools, community colleges, technical colleges and institutes, etc.), the types of special services they are offered, how such services relate to vocational coursework, and how the opportunities for special populations have changed over time. Special emphasis will be on the role of the Perkins Act in fostering opportunity and reducing barriers to access. The study will not, however, cover only programs funded under the act, but rather will describe the range of offerings for special groups and the policies and other influences that affect development of these offerings.

An equivalent examination will be made of program improvement at the state and local levels. NAVE will describe the kinds of reform efforts and other changes that districts and institutions have undertaken in the past few years and how Perkins funds have been used in relation to these efforts. These improvements could include new or expanded vocational programs, professional development activities, the expansion of employer involvement, the establishment of coordination arrangements with postsecondary institutions. Special attention will also be paid to changes that reflect interests of the federal and state governments, including improved services for the disadvantaged, the handicapped, single parents and homemakers, and other special groups; coordination and joint efforts among providers of programs for the disadvantaged (including those sponsored through the Joint Training Partnership Act); coordination among secondary and postsecondary

vocational providers; the combination of vocational and academic instruction; and the use of vocational education as a means for academic remediation. The study will also deal with state direction on issues of special populations and program improvement, as well as other state initiatives.

At the state level, the inquiry will focus on state leadership in reform, both in serving special populations and in bringing about general improvement of the organization and practice of vocational education. Attention will be paid not only to the interpretation and implementation of Perkins provisions, but to the overall use of state funding, technical assistance, administrative mandates, testing, and other policy mechanisms that may be used to influence practice.

This case study research and the state and local surveys are based on a research model aimed at assessing the capacity of states and local institutions to carry out the overall goals of federal policy. Description of the changes that have taken place and of the policies that have influenced these changes will help clarify not only the impact of the Perkins Act but also the overall ability of vocational education to deal with the needs of special populations and carry out reforms in practice. Change may have resulted from the Perkins Act or many other influences at the state and local levels, such as the academic reform movement, economic conditions, shifts in the population, and shifts in spending on education. The task of analysis in the research will be to show how the Perkins Act has affected capacity to deliver vocational education in the context of other sources of influence. An important goal will be to understand how the potential of the Perkins Act to increase capacity at the local level is affected by the way the act's various provisions and guidelines interact with other priorities and constraints.

Methods

The case studies will be conducted in nine states, and will include discussion with state officials and examination of vocational education offerings and enrollments in three communities in each state. In each community, the study will explore both secondary and postsecondary offerings.

TARGETING OF FEDERAL VOCATIONAL EDUCATION FUNDS

Various provisions and guidelines in the Perkins Act channel federal vocational education funds to particular purposes while attempting to prevent the substitution of federal funding for state and local funding. In these respects, certain provisions of the Perkins Act are stronger than those in prior federal vocational education legislation.

Issues

The basic issues to be addressed in this project are the following:

1. The extent to which legislative provisions of the Perkins Act are affecting the distribution of federal funds among target population groups and program goals, and the ways in which the provisions might be changed to increase targeting or to increase local capacity to serve the act's goals.
2. The consistency of the various provisions of the act in relation to one another and their importance for accomplishing the act's purposes. What ambiguities exist concerning the programs and activities that grantees are permitted or required to undertake?
3. The intended and unintended effects of Perkins guidelines and provisions on state and local decisions about program offerings, student placement, modes of service delivery, purchase of equipment, and other features of vocational programs.
4. The likely effects of the Perkins legislation on levels of state and local spending for vocational education and the reasons for such effects. How does the Perkins Act compare, in this respect, with prior (and other) federal education legislation?

Methods

This project will involve (1) a conceptual analysis of Perkins Act provisions with respect to their effects on the targeting of resources to particular purposes and (2) an empirical analysis of intrastate funding patterns before the Perkins Act and during its first year.

The conceptual analysis will use findings from the economic and legal literatures on intergovernmental finance and the spending behavior of educational institutions in response to fiscal incentives and guidelines. The empirical analysis will use data from the General Education Provisions Act (GEPA) administrative record system of the federal government.

Chapter 4

ACCESS OF SPECIAL POPULATIONS TO VOCATIONAL EDUCATION

The second major area of research in the National Assessment concerns the access of special populations to vocational education.

Research undertaken by the National Assessment is designed to answer three basic questions:

1. What changes have occurred over time in the participation of special populations--women, the disadvantaged and the handicapped--in vocational education? This research will describe the amount of vocational training undertaken by various populations in different occupational fields as well as the types and quality of training obtained.
2. What are the unique needs of special populations for vocational education and related services in relation to other population groups and in relation to other sources of education and training?
3. Within the constraints of existing resources, how well is federal policy serving the needs of special population groups with respect to vocational education? Are there preferable alternatives?

The first question responds directly to the first item in the congressional mandate for the National Assessment. The emphasis will be on documenting the extent of change in participation over time. The second question probes for effective roles for vocational education through viewing it in contrast with other sources of assistance and in the context of the real needs for vocational training of different population groups. The questions are intended to investigate issues of coordination more from the perspectives of clients to be served than from the perspectives of agencies providing service.

TRENDS IN ENROLLMENT OF SPECIAL POPULATIONS

One of the primary goals of the Perkins Act and prior federal vocational legislation has been to improve the access of special populations to high-quality vocational education. Interest in this issue has been stimulated, in part, by persistent evidence that high school vocational education is heavily sex segregated. Moreover, evidence from the previous national assessment of vocational education suggested that youth from urban and rural areas and physically and educationally handicapped youth have less access to high-quality vocational programs than other youth. One of the main obstacles to evaluating whether the objectives of the Perkins Act are being met is the lack of detailed historical data that consistently and reliably document patterns of participation in vocational and academic education and the consequences of this participation. This project is designed to provide both current and historical information on vocational enrollment for special populations and the population as a whole.

Issues

The emphasis in the Perkins Act on access to high-quality vocational education indicates that it is necessary to consider the types of vocational education coursework in which special populations enroll, as well as the amount. Although existing national data bases do not directly separate vocational education by quality levels, a number of characteristics of vocational education are thought to be related to quality. First, certain patterns of coursework may be more beneficial than others. For example, a progressive sequence of training in one field may generate greater earnings than a sampling of courses across different vocational subject areas. (This hypothesis will be examined in NAVE research on training-related placement and earnings.) Second, certain of delivery sites, such as area vocational-technical centers, may tend to provide higher-quality vocational training sites than others. High-quality sites may be more accessible in areas serving some populations than others. Finally, some subject areas may lead to employment with significantly greater prospects of advancement and earnings than other areas. If access to programs in the former areas

is rationed or there are extensive prerequisites, members of special populations may have low enrollment in such programs.

Despite the obvious importance of consistent time-series information on vocational enrollments, this information by itself may not indicate whether different groups have unequal access to more vocational education. One way to deal with this issue is to develop an individual- and school-level model of the determinants of participation in high-quality vocational education by attempting to control for all the important factors that determine a person's capacity to benefit from particular programs, including ability, educational expectations, and occupational preferences. If, after controlling for these fundamental individual characteristics, enrollment rates among special populations are higher in some schools than in others, differential access would appear to have an important influence on vocational enrollment.

Methods

This analysis of enrollment trends will require up-to-date information from a recent high school graduating class and comparable historic data. The former will be obtained from the High School Transcript Study of the class of 1987, that was conceived and developed by the Center for Education Statistics and NAVE, and funded by NAVE, the Office of Special Education and Rehabilitative Services (OSERS), the National Science Foundation and the CES. This project will collect a nationally representative sample of complete student transcripts from about 500 schools across the country. Historic enrollment data will be derived from other existing national surveys that include transcripts or other course enrollment data. These include: Project Talent (high school classes of 1960 and 1964), the Educational Testing Service's Study of Academic Growth and Prediction (1969), the National Longitudinal Study of the High School Class of 1972 (NLS-72), the National Longitudinal Study of Youth for the years 1976 to 1981 (NLS-Youth), and High School and Beyond Sophomore and Senior Cohorts (classes of 1980 and 1982). These data bases and related analyses are discussed more fully in chapter 5.

VOCATIONAL EDUCATION AND DISADVANTAGED PERSONS

The Perkins Act is a clear statement of commitment to improving the vocational education available to disadvantaged youth and adults. Under the law, "disadvantaged" persons are those who, because of poverty or learning difficulties, need additional assistance to succeed in vocational education. Descriptions of the problems disadvantaged persons in vocational education face abound. (see chapter 3).

The National Assessment of Vocational Education will assess in depth problems of disadvantaged students in vocational education. Analyses of economic status or academic ability, or both, are incorporated in nearly all of the NAVE's research activities. In addition, two special studies will be undertaken: (1) a project to "map" the range of institutional and program choices available to disadvantaged persons seeking occupational training and (2) an assessment of the role of transition services--job placement and job development programs--in secondary school vocational education programs.

Issues

Vocational education is one component in a substantial network of public and private employment and training activities. The "mapping project" is designed to--

- Lay out in a structured way the institutional elements of this network and describe the institutions in which disadvantaged students are most likely to enroll.
- Identify specific institution-related problems faced by disadvantaged students in gaining training and jobs.

The project on transition services is motivated by evidence that disadvantaged students may be more likely than other students to need special assistance in using their secondary school vocational training to obtain jobs or move on to more advanced skill training. Many secondary schools that provide vocational education to disadvantaged students may have no organized programs to deliver this assistance. Possible reasons

include the following: (1) educators may not see placement and job development as appropriate school responsibilities; (2) schools may not provide release time or additional compensation for teachers to provide transition services; and (3) union contracts may preclude hiring noncertified professional staff, such as persons trained as job developers and placement specialists. A broad range of strategies is included from cooperative education and incentive agreements between schools and employers, such as the Boston Compact, to job search and counseling. Among the specific questions to be examined are--

- Do disadvantaged students have a particular need for transition services, and if so, which types of services are most helpful?
- What is the role of vocational education in providing transition services, and are there successful school-based models that emphasize placement, job search, and follow-up assistance?
- What is the importance of transition services in relation to basic skills achievement and skill training?
- Are there institutional and financial barriers that discourage secondary schools from providing such services?
- What are the overall advantages and disadvantages of encouraging vocational education programs to place greater emphasis on such services?

Methods

The first project on the institutions in which disadvantaged participate builds upon a more general "mapping" of the overall job training system being conducted by the National Center on Education and Employment. Through a series of commissioned papers and conferences, this project will focus attention on the options available to disadvantaged individuals.

The second project assesses the pros and cons of various "transition" services for the disadvantaged in vocational education. This activity will produce an analysis of what is known about the need for and effectiveness of such approaches in vocational education, and the policy implications

that this may have for the use of Perkins funds. The research involves a critical review of the literature in such areas as school-based youth employment programs and cooperative education, as well as case studies of current programs.

SPECIAL EDUCATION STUDENTS AND VOCATIONAL EDUCATION

The participation and success of special education students in high-quality vocational education programs that facilitate the transition from school to work has been a concern of federal policy for many years. The Perkins Act reflects this concern by requiring that handicapped students be placed in the "least restricted environment" and that their vocational education be coordinated with all other aspects of their education. The vocational education activities specified for handicapped students in section 204(c) of the Perkins Act stress "front end" individualized planning, guidance and counseling, and supplementary services. Consistent with the objective of mainstreaming handicapped students into vocational education coursework, emphasis could also be placed on directly assisting them in finding jobs.

Issues

NAVE is undertaking a major study to determine (1) the extent to which handicapped students have equitable access to vocational education programs that are likely to prepare students for well-paying jobs and (2) the extent to which handicapped students are mainstreamed with regular students. A second study will examine exemplary programs for handicapped students to assist their transition into gainful employment making use of their skills. Specifically, the studies will examine--

- The relative enrollment of handicapped students (by type of handicap) in various kinds of vocational educational coursework, (e.g., various occupational areas, occupationally specific exploratory or introductory courses) and the number of handicapped students having access to work experience or cooperative programs.

- The relative use of various modes of delivery, such as mainstreamed versus self-contained programs, and at what grade levels these modes are introduced. Comparisons will be made according to sex, ethnicity, school characteristics (e.g., wealth measured by costs per instructional dollars, community characteristics), and district policy.
- The types of support services received by special education students, with emphasis on the services specified in the Perkins Act.
- The amount and marketability of the vocational education courses taken by handicapped students.
- Exemplary programs that assist handicapped students in finding and retaining jobs, work with employers to develop jobs, and provide follow-up counseling and assistance.

Methods

Data for answering the first four questions will come from the High School Transcript Study of the Class of 1987. The sample of schools and students has been designed to also provide the transcripts of about 7,500 severely to mildly handicapped students enrolled in regular high school programs. As a precursor to collecting these transcript data, NAVE developed a new taxonomy of the courses taken by special education students because the standard classification of secondary school courses excludes courses for the handicapped. NAVE also developed a set of procedures for collecting and coding transcripts for handicapped students to allow for the fact that these transcripts are often less complete than transcripts for nonhandicapped students.

WOMEN IN VOCATIONAL EDUCATION

The extent and nature of participation by women in vocational education has been an issue of continuing concern. Young women are more likely to enroll in high school programs in business, marketing, and home economics than in technical programs. Further, many of the vocational fields women enter offer lower earnings and less opportunity for advancement than the

fields men enter. Women's academic choices--relatively few math and science courses--also limit job mobility and postsecondary educational options.

Congress has repeatedly mandated specific legislation to reduce sex discrimination and sex stereotyping and to assure that women have the opportunities to enter new occupational fields that lead to well-paid jobs. By mandating set-asides totaling 12 percent (for single parents, displaced homemakers, and sex-equity activities) and through other provisions as well, the Perkins Act assumes that equity issues still need special attention. Case studies conducted as part of the first NAVE research area (see chapter 3) will describe how states and localities have carried out these portions of the act. Specifically, these studies will examine--

- The role of the state sex-equity coordinator, a position mandated in some detail in the act.
- The use of sex-equity monies for innovative activities (and for identification of activities that change the behavior of teachers and students); the growth of special programs for single parents and displaced homemakers; and the extent to which the set-asides leverage new funds or lead to new programming.
- Whether guidance from the Department of Education with respect to the act is adequate and appropriate for achieving the legislation's goal of greater access by women to high-quality and nontraditional vocational offerings.

Other National Assessment projects will examine trends of enrollment in vocational education (chapter 4) and the effects of vocational enrollment on jobs and earnings (chapter 5). The following topics on sex equity will be covered:

- Change in the enrollments of young women in traditional and nontraditional occupations over the past 25 years.
- The trade-offs between participation in vocational and academic education for young women. To what extent does participation in vocational programming mean that high

school students forgo courses that could better prepare them for college or technical careers?

- The effects of participation in vocational education on earnings for women compared to men.

VOCATIONAL EDUCATION FOR ADULTS WITH LIMITED PROFICIENCY IN ENGLISH (LEP)

There is considerable evidence that persons who lack proficiency in English have lower earnings and are more likely to be unemployed than those who are proficient in English. For more than a decade the federal government has sponsored a small program of grants to agencies and institutions to provide vocational and language services for LEP adults. The congress has asked the National Assessment to examine the needs of the LEP adult population and the ability of current efforts to meet these needs.

Issues

In response, the National Assessment has identified the following research questions:

- What are the needs of LEP adults for employment training and related services? Although the LEP population is diverse, including both U.S. natives and immigrants, is it possible to identify which subgroups are most in need of or can most benefit from short-term training?
- What training and related services are currently available to LEP adults? What service delivery approaches are used and what types of agencies or organizations deliver services? What is the role of federal policy, if any, in service delivery?
- How effective are current approaches? What mixes of services seem to help students find and keep jobs? How well do the federally sponsored programs operate? What is the cost-effectiveness of alternative types of services?
- What policy incentives would encourage states and localities to provide more or more effective services to LEP adults?

What appear to be the barriers to local action and how can they be overcome? What are the most important actions that should be taken?

Methods

To answer these questions, the National Assessment is performing three types of analysis:

1. Review and reanalysis of data sets, program evaluations, and other literature to establish the extent of need and effectiveness of current efforts. In particular, 1980 census data will be reanalyzed to determine relationships among a number of factors, including English-language ability, years since immigration, previous education, and occupation and earnings.
2. Case studies of statewide policies and programs to describe current incentives for and barriers to greater action. These studies, which will be conducted in six states, involve discussion with officials in education, employment training, refugee resettlement, social services, and other areas.
3. Policy analysis to assess the efficacy of alternative program models and policy mechanisms. On the basis of reanalysis and case studies, NAVE will construct policy options that provide alternative mixes of language instruction, vocational training, and support services and will then consider the likelihood that each option will bring services to the persons most able to benefit from additional assistance.

Chapter 5

STATUS OF VOCATIONAL EDUCATION IN SECONDARY SCHOOLS

The third major area of research in the National Assessment is the status of vocational education in secondary schools. The projects to be conducted deal with three broad topics:

1. The nature and extent of vocational education in secondary schools. The information developed will cover, for example, enrollment trends over time, the composition of vocational coursework taken by students, and correlations with geographic and socio-economic factors.
2. The outcomes of vocational education in secondary schools in terms of both employment and academic skills.
3. Policy alternatives for improving vocational education in secondary schools.

This research responds directly to the items in the congressional mandate for the National Assessment on improving (modernizing) vocational education programs and outcomes for students.

SECONDARY SCHOOL CURRICULUM: TRENDS AND DIMENSIONS OF ENROLLMENT

Despite the national need for basic information on the courses that high school students take, consistent national data on course enrollments over time are nonexistent. This is true for all subject areas, including vocational education, mathematics, and science, areas in which there has been strong federal interest. The federal government once collected state data on vocational education enrollments, but this program was discontinued in 1984 because the data were unreliable.

Issues

Recent changes in high school graduation requirements and the increasing use of minimum competency exams have heightened the importance of

obtaining consistent national data on trends over time in the coursework taken by high school students in different subject areas. Particularly important for purposes of the assessment are trends of enrollment in vocational education compared to other subject areas. These data will provide a historical base for assessing changes that have taken place in vocational education since the landmark Vocational Education Act of 1963. The data and methods to be developed also should provide a strong foundation for developing a new national data collection system for vocational education, one of the requirements of the Perkins Act.

Methods

Responding to the need for consistent and reliable national enrollment data, the National Assessment has launched a program of data collection and research involving the following activities.

A new conceptual and reporting framework for assessing high school enrollments and enrollment patterns is being developed. This activity, now nearing completion, has involved two phases. First, NAVE developed a scheme for classifying more than a thousand high school courses into four major curriculum areas: academic, vocational, personal/other, and special education. All courses were further classified into subject areas, fields, and levels. The new classification scheme, called the Secondary School Course Taxonomy (SST), provides an up-to-date vocabulary for identifying policy-relevant changes in high school enrollments.

Second, NAVE developed an approach to characterizing alternative patterns of high school coursework. This system, among other things, identifies the following vocational enrollment patterns: (1) a progressive sequence of specific occupational training, (2) sampling of different introductory vocational courses, and (3) limited, casual participation. Subsequent empirical analysis will assess the outcomes associated with these and other patterns, thereby providing valuable information on the types of vocational education that are most effective. This new taxonomy and the methodology for characterizing enrollment patterns were applied to the High School and Beyond survey for the class of 1982 to provide the data and results reported in chapter 2.

Trends of enrollment over time will be obtained through similarly applying the taxonomy of courses to a series of nationally representative data sets that include transcript information. The data sets to be analyzed include Project Talent, the ETS Study of Academic Prediction and Growth, NLS-Youth, NLS-72, High School and Beyond, and the High School Transcript Study. These data sets will provide a consistent time series of course enrollments and enrollment patterns from 1960 to the present.

EFFECTS OF THE ACADEMIC REFORM MOVEMENT

In the past five or so years, dramatic initiatives have been launched to change American secondary education. Most, if not all, states have substantially increased the number of math and science courses required for high school graduation, and many others have introduced or expanded the use of minimum competency exams in writing, reading, mathematics, and other subjects. A number of states have also established advanced diplomas that require substantial coursework in mathematics, science, and foreign language, as well as English, history, and social studies. It is likely that these reforms will have dramatic positive effects on enrollments in mathematics, science, and foreign language courses and a significant negative effect on enrollment in elective subjects, such as vocational education.

Issues

NAVE's assessment of the effects of academic reforms will center on three major activities. First, as described in the previous synopsis, nationally representative enrollment data for the classes of 1976 to 1982 and 1987 will be constructed and used to document detailed changes in enrollments in academic and vocational education. These data will pinpoint any vocational subjects that have been particularly hard hit by the suspected decline in vocational enrollments. They will also document the extent to which the clientele served by vocational education has changed. Scattered anecdotal evidence suggests that the most academically talented students have decreased their participation in vocational education somewhat. Course graduation requirements and minimum competency exams may

affect most of the participation in vocational education of students with the greatest interest in it and the lowest academic talent.

Second, the specific effects of academic reforms will be examined by correlating individual course enrollments with course graduation requirements, the use of minimum competency exams, and the existence of dual diplomas. This analysis will identify the separate effects of the academic reforms, controlling for changes that may have occurred in the demographic composition of secondary schools (and that may have independently affected enrollments).

Finally, through data analysis and case studies, NAVE will examine how vocational education has adjusted and is continuing to adjust to the increased emphasis on basic skills and the likely decline in vocational education enrollments. Preliminary evidence suggests that area vocational education centers have borne a disproportionately large share of the suspected decrease in vocational education enrollments. If so, this decline might be due to the fact that area vocational education centers have tended to offer courses in three-hour blocks, a practice that may reduce access in an era of limited electives. More generally, declining enrollment in electives may encourage restructuring of vocational programs so that they require fewer credits and complement subsequent vocational training in postsecondary schools, such as in the so-called 2+2 programs.

Methods

Effects of the academic reform movement on vocational education will be determined by analyzing data from the High School Transcript Study and, to provide further bases of comparison, High School and Beyond. An important feature of the High School Transcript Study is that information on the local graduation requirements in force was collected.

ALTERNATIVE GOALS FOR VOCATIONAL EDUCATION AND PROGRAM EFFECTIVENESS IN SECONDARY SCHOOLS

Vocational education in secondary schools has a range of purposes in addition to providing students with the occupational skills needed to get a job. Other goals are to foster the exploration of occupational alterna-

tives, enhance academic learning and problem-solving capabilities, and impart work values. Different programs and courses emphasize these goals in different proportions.

Recognizing these various goals is a necessary first step in assessing the outcomes of vocational education for students. Programs and coursework intended primarily for teaching students occupational skills should not be directly compared with programs and coursework intended primarily to aid students in learning about occupational alternatives that might suit them. The new taxonomy of secondary school coursework to be developed in the National Assessment, and described above, will take such differences into account.

Distinguishing among vocational programs according to their goals or purposes is also essential for taking the next analytical step--beginning to identify the sources of program effectiveness. Programs having different goals are likely to have different staffing patterns, curriculum content, and patterns of organization, and the more pronounced the differences may be, the more effective the programs are likely to be in achieving their goals.

Program goals and structure also are relevant to gauging the prospects of reform or improvement initiatives. The more an initiative conflicts with prevailing goals and programmatic structures, the less likely it is to spread.

Issues

The National Assessment will explore three basic questions in this area:

1. What are the various basic goals of secondary vocational education and their associated staffing patterns, organizational structures, incentive structures, and curriculum content?
2. Which goals and structures are most prevalent in secondary vocational education? How strong are the links between goals and program structure?

3. What are the most effective means of achieving various program goals? What systematic procedures can be pursued in order to identify sources of quality and effectiveness in vocational education?

Methods

Three projects bearing on these questions will be conducted. The first is a set of qualitative case study descriptions of exemplary vocational education programs in secondary schools. The second is a statistical analysis of goals and program structure using the Consortium Administrator and Teacher data from the High School and Beyond survey. The third is a statistical study to estimate models for developing the sources of program effectiveness in vocational education, considering job placement, basic skills, and earnings as the measures of effectiveness.

TRAINING-RELATED JOB PLACEMENT

The degree to which a person's vocational training is relevant to subsequent employment is a traditional measure of the performance of vocational education. The importance of training-related placement rates, however, depends critically on the degree to which vocational training develops specific or broad occupational skills. In the case of specific training, persons who obtain training-related employment are likely to earn more than persons who obtain non-training-related employment. In the case of general training, the earnings of both groups are likely to be similar. Empirical evidence has tended to indicate that vocational education has largely (but not exclusively) been a provider of job-related skills.

Issues

Because training-related placement is a strong predictor of earnings for vocational programs that emphasize job skills, placement rates are legitimate measures of program performance. Three states, in fact, have recently decided to allocate funds to school districts at least partially on the basis of measured training-related placement rates. More generally,

training-related placement rates can be used to identify vocational programs in need of expansion, contraction, or reform.

Training-related placement rates are typically less than 100 percent, even in the best of circumstances. In fact, given the unpredictability of the labor market, an ideal placement rate would probably be appreciably less than 100 percent. Rare and newly emerging occupations, for example, may offer highly paid employment yet not count as successful placements. Low training-related placements probably indicate some problem, for example, of mismatch in skills and employers' needs, imbalance of supply and demand (i.e. the number of qualified workers exceeds the number of available jobs), frictional mismatch (qualified workers are unable to locate job vacancies that are training related), or voluntary nonplacement (individual career interests may change after participation in a vocational program). The proper response to low training-related placement rates clearly depends on the cause of the problem. Consequently, one of the major goals of NAVE research is to develop the conceptual and empirical tools needed to understand and use training-related placement information to guide policy.

Methods

To construct training-related placement rates that are objective and valid across individuals and schools, it is necessary to assess whether, or the degree to which, well-defined vocational fields (or courses) and occupations are related. The National Occupation Information Coordinating Committee (NOICC) Classification of Instructional Programs (CIP) to 1970 Census Occupation Crosswalk has been used for this purpose in previous research and will be similarly used by the National Assessment. Information on vocational enrollment and subsequent occupations will be taken from the High School and Beyond Sophomore Cohort and NLS-Youth, representing the high school classes of 1976 to 1982.

The first research priority here will be to compute training-related placement rates for all vocational students, particularly those who work rather than go on to postsecondary education. Separate rates will be calculated for different vocational programs; for different groups of students, distinguished by sex, race, ethnicity, ability, and family background; and for alternative vocational enrollment patterns (see discus-

sion of research on secondary enrollments). In particular, NAVE will examine the extent to which students with sequential, complementary training in one vocational field are more likely to use their training than students who sample widely from many vocational fields or take only a limited amount of training.

Second, NAVE will assess the importance of factors such as imbalance in aggregate supply and demand, frictional mismatch, and voluntary nonplacement.

Third, NAVE will compare placement rates among vocational programs with different goals and structures. For example, schools that encourage frequent contact between vocational teachers and employers and schools that promote placement activities may have higher training-related placement rates than other schools.

Finally, the consequences of training-related and non-training-related placements will be examined in the larger context of the labor market consequences of vocational and academic training (see the next section).

PRODUCTIVITY, EARNINGS, AND EMPLOYMENT

One of the important benefits of participation in education, and vocational education in particular, is higher worker productivity and earnings. How alternative types of education and training compare in leading to these outcomes is therefore an important component of an overall assessment of secondary (and postsecondary) vocational education.

Issues

NAVE's analysis of the economic consequences of vocational education is organized around three major topics. First, given the current structure and quality of secondary education, postsecondary education, and employer-provided training, are training resources allocated optimally to the secondary and postsecondary vocational and academic sectors? For three decades, researchers in the human capital tradition have attempted to estimate the rate of return to "investments" in human capital, defined in terms of years of school attainment or school attainment level (high school graduate, college graduate, etc.). NAVE research will extend this analysis by

separating school attainment into its academic and vocational components to estimate the rate of return to academic and vocational training at the secondary and postsecondary levels. These estimates will, in principle, make it possible to evaluate the adequacy of resources devoted to academic and vocational training. In particular, high rates of return in a sector signal the need to devote additional resources to that sector, whereas low rates of return indicate resources should be invested elsewhere.

The second and third areas of research concern the economic consequences of alternative vocational enrollment patterns and alternative vocational programs and delivery systems, respectively. This research, which builds on the school effectiveness and educational production function literatures, is designed to identify the types and features of academic and vocational education that generate superior outcomes. Existing evidence indicates that there is wide variation in patterns of enrollment in vocational education. Some students enroll in sequences of broad or specific occupational training, others sample widely among different subject areas, and still others take only a course or two. NAVE research will investigate the extent to which these and other enrollment patterns have different economic consequences. The benefits of vocational training could, in principle, be increased by encouraging students to select patterns of participation that generate the highest economic returns. The benefits could also be enhanced by expanding programs that yield superior outcomes.

An emerging body of research suggests that job-related vocational training has a much higher return than non-job-related training. Such findings are consistent with the pattern reported in chapter 2 that most vocational training at the secondary level is occupationally specific. The key aspect of NAVE's research will be to compare different patterns of vocational education enrollment to identify the types of vocational training that are most beneficial for students.

Methods

The task of obtaining valid, precise estimates of the causal effects of vocational and academic enrollments on productivity, earnings, and employment is complicated by the fact that these enrollments are the result of students' choices, perhaps influenced by parents, friends, and counselors.

As a result, simple comparisons of the average earnings of students with different amounts and types of vocational education are unlikely to provide accurate (unbiased) estimates of the consequences of this training. In fact, factors such as motivation and ability (measured prior to participation in vocational education) may be at least as important as educational experiences in determining earnings and employment. The theoretically appealing, but usually infeasible, approach to this dilemma is to compare statistically the earnings associated with different educational experiences among persons who are known to be otherwise identical (with respect to motivation, prior ability, family background, etc.). The traditional research method of ordinary least squares, used in many studies of vocational education, is based on this approach. But this technique is compromised by the fact that it is often unwarranted to assume that the analyst has controlled for all the fundamental (as opposed to random or transitory) determinants of earnings and employment. If not, estimates of the consequences of participation in academic and vocational education will be incorrect (biased).

Fortunately, in the past decade statisticians have made great strides in developing statistical methods designed to deal with the problem of selection bias. These methods are similar to methods that have been used by macroeconomists to study the determinants of inflation, unemployment, and growth of the gross national product. Models of selection bias, such as those developed by James Heckman, require analysts to specify and estimate models of the determinants of academic and vocational enrollment choices. Enrollment equations are used in conjunction with outcome equations to obtain unbiased, causal estimates of the effects of enrollment choices. The reliability of these estimates depends critically on the quality of the enrollment models. Hence, an important part of NAVE's research on the outcomes of vocational education will be to develop credible models of enrollment choices. These models are, of course, useful in their own right, and will be used to assess the extent to which school factors such as course graduation requirements and minimum competency examinations affect enrollment choices.

To increase the reliability of the analysis and to obtain estimates of the outcomes of vocational education for multiple time periods, NAVE will

use at least three different data sets in the research: NLS-72, the NLS-Youth (classes of 1976 to 1981), and the High School and Beyond Sophomore Cohort (class of 1982). These data sets all contain complete or at least partial transcript information and substantial follow-up data on earnings and employment. Thus, it will be possible to assess the outcomes associated with different degrees of training-related placement (or course utilization) and with alternative enrollment patterns.

DEVELOPMENT OF BASIC SKILLS

In an era of renewed interest in basic skills, it is important to assess the extent to which secondary vocational education is or could be an important contribution to the development of these skills. To the extent that basic skills are general and transferable, it might seem difficult to teach them in a setting that is traditionally used to convey specific occupational skills. But courses that have mathematics and science prerequisites and require mastery of technical material, computers, and computer-operated equipment constitute a growing percentage of vocational training. These courses may contribute directly to the development of basic skills, or they may stimulate enrollment in traditional academic courses by demonstrating the occupational relevance of these skills.

Issues

NAVE's assessment of the links between vocational instruction and the development of basic skills builds on the extensive school effectiveness and educational production function literature. This literature has examined the effects of school characteristics (such as class size, per pupil expenditures, and public vs. private school status) and environmental factors (such as staff collegiality and student discipline) on standardized test scores. NAVE will examine the effects of alternative types of vocational training on verbal and mathematics achievement and will identify vocational courses that are likely to enhance mathematics and verbal skills.

Methods

The empirical analysis will rely on the High School and Beyond Sophomore Cohort survey and transcript file. Standardized tests were administered to this sample at the end of the 10th and 12th grades. The period between tests encompassed the two high school years during which the vast majority of vocational coursework is taken. If some types of vocational education are shown to contribute to development of basic skills, the National Assessment will document the extent to which these courses constitute an important share of the vocational curriculum and are likely to grow in importance over time, perhaps in response to the growing demand for workers in technical fields.

ENHANCING ACADEMIC SKILLS

The congressional mandate for the National Assessment includes a charge to examine the effects of vocational education on the academic skills of students. An important part of the National Assessment is to identify alternative approaches to the enhancement of academic skills through vocational education and methods of assessing effectiveness. Encouragement could be given in federal legslation to objectives of enhancing academic skills.

State education agencies are now examining the role of secondary vocational education in their quest to improve the basic and academic skills of the nation's work force. For example, New York and Ohio are in the process of redesigning vocational education to strengthen its academic content. California is experimenting in some schools with a curriculum that integrates academic and vocational education by emphasizing practical applications of abstract concepts. The Southern Regional Education Commission on Vocational Education is sponsoring pilot projects designed to enhance basic skills in 13 states and 26 school districts.

The National Assessment's research will--

- o Synthesize recent research on these issues.
- o Determine, for various settings and skills, how vocational programs can reinforce academic skills.

- o Identify various program models and strategies for integrating vocational and academic curricula and develop evaluation techniques to assess the effectiveness of these experimental programs.

A series of case studies will describe alternative approaches to developing secondary school programs that combine vocational education with academic or basic skills. Available research on the effectiveness of such programs will be summarized. From this base of information, recommendations will be made on the development of more systematic approaches to experimenting with alternative methods of increasing the learning content of vocational education.

TEACHER WORK FORCE

Policies to improve the quality of the teacher work force are at the core of the current academic reform movement. Efforts to alter training and certification requirements are driven, in large measure, by projections indicating that the number of new teachers hired will grow substantially in the years to come.

Issues

Supply and demand projections for vocational education teachers may not mirror those for regular teachers, in which case initiatives to raise entry-level standards for teachers may have little effect on the quality of the vocational teacher work force. If declining enrollments or limited teacher attrition depress demand for new teachers, improvements in the quality of the teacher work force will depend on incentives for continued professional development and requirements for recertification. Of course, certain reform policies are likely to be outside the scope of federal authority or not feasible.

Methods

The National Assessment may undertake a research project to--

- o Reanalyze existing data to provide descriptive profiles of the demographic and professional characteristics of vocational education teachers at the secondary school level.
- o Estimate the future supply and demand for vocational education teachers by reviewing existing studies and data bases.
- o Examine how changes in state teacher certification requirements have affected the supply of entrants into the field.

This project will rely on a combination of secondary analysis, literature review, and commissioned papers. The data bases used will include High School and Beyond, the Public School Teacher Survey, and state manpower data bases.

Chapter 6

STATUS OF POSTSECONDARY VOCATIONAL EDUCATION

The fourth area of the National Assessment is postsecondary vocational education. The broad topics to be studied parallel those described in the chapter on secondary vocational education:

- o The nature and extent of postsecondary vocational education student enrollments and programs.
- o The outcomes of postsecondary vocational education for students.
- o Federal policy alternatives for improving institutional quality and access to programs, ranging from systems of performance incentives, to increased programmatic support for improving institutional quality, and to strategies of finance.

POSTSECONDARY VOCATIONAL ENROLLMENT PATTERNS

One of the most important and least understood segments of the education and training system is the set of institutions that provide vocational training to people after they leave the secondary school system. Despite a recent decline in the size of the traditional college-age population, this sector has grown substantially over the past two decades. The proportion of postsecondary students enrolled in vocational fields has increased notably, as have the number and variety of service providers. Yet little is known about the institutions and people that constitute the system of postsecondary vocational education, the reasons students enter and exit the system and, ultimately, the extent to which students benefit from the training they receive.

Issues

The purpose of this research is to develop a description of enrollment and course-taking patterns of vocational education students in varied postsecondary settings, and to compare these patterns with those of similar students in nonvocational fields. Of particular interest is the reportedly high rate of non-completion among students in postsecondary vocational education. Research described in the next section will examine the effect of various enrollment, course-taking, and program completion patterns upon labor market outcomes.

Specific questions to be examined in this project include the following--

- o What are the rates of completion and non-completion for students enrolled in postsecondary vocational training, and how do these rates vary by type of institution, field of training, length of training period, demographic and educational characteristics of students, occupational plans and expectations, and students' full-time or part-time status?
- o Do students who complete programs differ significantly from non-completers in the total number of courses taken or the concentration and coherence of training?
- o To what extent do students shift among institutions, and do shifts reflect a logical progression of training (e.g., from two-year to four-year programs, from four-year liberal arts to two-year vocational education) or a form of extended exploration?
- o What are the ways in which students combine school and work? (Many vocational students are older than traditional students, or work while attending school.) Do students who enter postsecondary training following periods of work show greater purpose in their selection of courses than those whose postsecondary training begins immediately after high school?

- What is the relationship between vocational training at the high school and postsecondary levels? To what extent do high school vocational education students continue in vocational education at the postsecondary level, and do continuing students duplicate their high school courses, take more advanced training, or enroll in new areas of training?
- To what extent are the military and programs sponsored by the Job Training Partnership Act an alternative source of job training, particularly for disadvantaged youth?

Methods

These questions will be investigated through analyses of several longitudinal data bases: High School and Beyond, NLS-Youth, and NLS-72.

POSTSECONDARY TRAINING-RELATED PLACEMENT AND EARNINGS

For secondary vocational education, issues and research activities pertaining to training-related placement and earnings were discussed extensively in chapter 5.

Issues

Similar issues and problems arise at the postsecondary level. In many respects, however, the greater complexity and diversity of postsecondary education is mirrored by more analytically difficult research problems. In particular, postsecondary training differs significantly from secondary vocational education in the following ways:

- The length of postsecondary programs of study ranges from three months (or less) to four years or more.
- Training is provided by a diverse set of institutions, ranging from proprietary vocational schools, which provide concentrated job training often paired with job placement assistance, to four-year colleges, which provide vocational

training as an important but not exclusive part of their traditional offerings.

- Students may participate intermittently and part-time, often going to school and working simultaneously, and complete or not complete a degree program.

The great diversity of postsecondary training experiences may permit some sharp tests of the consequences for students of such patterns of enrollment and differences among programs. In particular, proprietary schools, technical colleges and institutions, community colleges, and four-year colleges provide training in some of the same fields (e.g., computer programming), yet often differ substantially in their requirements for program completion. In general, proprietary schools have limited course requirements outside the major field of study, whereas community and four-year colleges require substantial academic and elective coursework. These institutional differences create significant variation in the academic and vocational preparation of workers in similar occupations. An important policy question is the extent to which additional academic training (such as that often required by two- and four-year colleges) helps workers in the short and the long term.

Methods

The statistical problems generated by the fact that individuals select their own academic and vocational coursework are especially pronounced at the postsecondary level. These problems and proposed solutions are discussed in some detail in the section on Productivity, Earnings, and Employment in chapter 5.

The empirical analysis of postsecondary outcomes will rely on two primary data sets, NLS-72 and the High School and Beyond Senior Cohort. Both data sets contain postsecondary transcript information as well as the usual data on personal and family characteristics and labor market outcomes. Although different data sets will be used in the secondary and postsecondary outcomes analyses, common methods will be used to measure training-related placement and to estimate the earnings consequences of vocational training. Thus, it will be possible to compare the relative effectiveness of secondary

and postsecondary vocational training. This analysis will be important because enrollments in secondary vocational training may have been declining while postsecondary vocational enrollments may have been growing.

COMPARISON OF OUTSTANDING AND TYPICAL POSTSECONDARY INSTITUTIONS

Despite the success of postsecondary vocational education programs in attracting students, there are concerns about the quality of training offered at this level. Such concerns may be attributed to (1) the important role of vocational training in efforts to increase economic productivity, reduce welfare dependence, and retrain dislocated workers; (2) the effect of rapid technological change in reshaping the workplace and occupational training requirements; (3) unresolved conflicts within vocational education (and employment and training more generally) about whether to emphasize short-term, job-specific benefits or broad, deep understanding of basic occupational fields; and (4) competing pressures on institutions and faculty to maintain enrollments and, simultaneously, to set reasonable standards for achievement.

Issues

One objective of the National Assessment is to determine whether federal funds spent at the postsecondary level can be targeted to foster the development of high-quality programs. Therefore, the National Assessment will examine the organizational attributes and content of outstanding vocational education programs and determine whether characteristics of institutional excellence ca[illegible]e promoted through federal legislation.

This study will compare outstanding and typical programs in community colleges, technical colleges and institutes, and proprietary schools. The National Assessment expects to learn how high-quality programs (1) accommodate competing pressures for specific job skills as well as broad occupational competencies; (2) gauge the effects of emerging technologies on job-training requirements and adjust offerings accordingly; (3) cultivate working relationships with secondary schools, other job training suppliers, economic planners, and policymakers at various levels of government; (4) involve employers in a multitude of ways (e.g., clients, prospective

sources of employment for students, and technical advisors); (5) attract qualified instructors and engage them actively in both training and job development; (6) establish rigorous educational standards; and (7) alter the mix of program delivery strategies in response to economic, demographic, and technological changes.

Methods

Site visits will be conducted with a sample of programs in approximately 32 institutions. The sample will be drawn from schools located in eight economically disparate Standard Metropolitian Statistical Areas. The occupational fields that will be sampled are advanced manufacturing, accounting, and nursing.

PERFORMANCE-ORIENTED POLICIES TO IMPROVE POSTSECONDARY VOCATIONAL EDUCATION

The major providers of postsecondary vocational education are community colleges, proprietary schools, and technical institutes. These institutions depend almost entirely on student enrollments for their financial support--from state and local reimbursements, tuition payments, and student loans. Most of these institutions accept all applicants and, as the number of traditional college-age students has declined, face increasing pressures to seek out and retain marginal students. As a result, employers may be justifiably concerned about the quality of some programs. Simultaneously, some education organizations have become increasingly concerned about problems of quality and have called for higher standards and more rigorous assessment of what students are learning.

The National Assessment has undertaken a project to examine alternative federal policy options that would emphasize student performance more than current policy does. Such policies would clearly define expected results, preferably in quantifiable terms; hold service providers accountable for achieving expected results; and avoid heavily prescribing the means for achieving desired results. It is important that such policies should have no obviously adverse effects on the access of economically or academically disadvantaged populations to high-quality vocational education.

A wide variety of performance-oriented incentives has been identified. Some are targeted to alter the behavior of students directly. Others operate on state policy or on local institutions or programs. In general, these options incorporate different fiscal, governance, and regulatory strategies. Here are three examples--

1. Performance-based finance is a strategy of allocating resources on the basis of the extent to which service providers achieve certain measurable outcomes. In vocational education such outcomes could include program completion, occupational competence, or other measures of students' achievement. Performance incentives have been implemented in the Job Training Partnership Act program, and in the vocational education programs of at least three states.
2. The involvement of employers in vocational education governance may be a critical ingredient in the success of programs. Under the Perkins Act, however, basic decisions about the allocation of resources between secondary and postsecondary vocational education programs, program priorities, and the funding of special projects rest with the sole state agency, which is typically the state department of education. The act provides for advisory and consulting arrangements with labor and industry, but real authority still rests with the public sector.
3. "Truth in advertising" regulation is an approach relying on students' choices to allocate resources efficiently on the basis of information on the quality and effectiveness of institutional alternatives. The objective is to increase the incentives faced by institutions to improve the quality of programs through ensuring that schools provide comparable and accurate information on program effectiveness.

Policy options designed to increase emphasis on student outcomes raise a variety of questions with respect to specification and measurement

of outcomes, potential "creaming" of students, the relationship of costs to likely benefits, complexity of implementation, and compatibility with state and local funding and governance arrangements.

Methods

This research activity will be largely synthetic and build on similar outcome-oriented approaches undertaken in vocational education and other policy areas. NAVE will (1) review and synthesize the literature on outcome-oriented approaches to public policy, (2) commission papers and sponsor a seminar on the issues raised, (3) conduct a limited number of case studies, (4) interview key people in vocational education, state governance, and the private sector, (5) analyze policy options and synthesize results.

FINANCING OF POSTSECONDARY PROGRAMS

In addition to sponsoring various employment and training programs, the federal government finances postsecondary vocational education in at least two ways: (1) through student loans and grants that affect enrollment decisions of students and (2) through Perkins Act funds that provide program support.

Since the late 1970s, total federal spending on postsecondary occupational training (from all sources, including but not limited to spending on vocational education) has declined 8 percent (in constant dollars). During the same period, federal loans and grants increased nearly 70 percent. Clearly, loans and grants loom as an increasingly large factor in the federal financing of postsecondary vocational education. Moreover, student enrollment decisions are highly cost-sensitive, and a substantial number of students receive federal loans.

Issues

The relationship between student aid, overall costs of attendance, and patterns of enrollment requires scrutiny. Through its research, the National Assessment will try to answe· the following questions:

- What are the costs of obtaining postsecondary vocational training, and how do students pay for it (family contributions, work, savings, aid)?
- How much federal aid do vocational education students receive, and how does the level of aid vary by type of institution attended, family, income, race, ethnicity, sex, and course of study?
- Is the receipt of financial aid related to whether students persist in and complete postsecondary training?

A second research area will be the types of postsecondary funding most likely to improve and enhance access to vocational education. The Perkins Act is unusual in at least two ways. First, it is an uneasy consolidation of secondary and postsecondary funding in a single instrument. Legislative and regulatory provisions appropriate for administration of a high school program could be problematic at the postsecondary level. Second, the act provides institutional or programmatic aid that is not directly tied to student enrollments. The arguments for and against programmatic and student aid require further explanation.

Methods

The research issues described will be explored in several ways. Issues involving students' finances will be addressed through the analysis of High School and Beyond data, supplemented by the National Postsecondary Student Aid survey (if it is available). Issues of institutional support will be examined through review of relevant literature in the fields of economics, public policy, management, and education.

Chapter 7

SKILLS TRAINING AND THE ECONOMY

Investments in skills training by industry and in the educational sector are generally thought to affect the performance of the U.S. economy. Basic information is needed to understand how differing levels of investment in skills training and education in the public and private sectors affect economic performance and the careers of individuals. A series of policy trade-offs exist with respect to the proper balance between investment in training as distinct from education; between investment in the public and private sectors; and between formal and informal modes of training. Important underlying questions concern the stages of industrial development and of individual work careers at which training is most critical, differences among occupational and population groups in their access to training, and the ways in which training should be financed. Policy questions about vocational education are just one segment of a larger range of policy questions about public and private investment in skills training.

These issues bear most directly on the items of the congressional mandate concerning the adequacy of resources for meeting the nation's job training needs and the coordination of vocational education programs with economic development activities.

Issues

Some specific issues of skills training and the economy to be investigated in the National Assessment are--

- How do rates of return and use of skills training compare among different providers and types of training, between informal on-the-job training and more formal types of training, between high-school-age and older students, and between basic education and skills training?
- Under what circumstances are public and private investment in training likely to be largely substitutes for one another. What are the major factors affecting corporate decisions to invest in training of different kinds, and can

these factors be shifted through public policy? For industry and education partnerships of various kinds, what are the typical distributions of benefits and costs among the public and private sectors?

- o What is the structure of training in industry? That is, how much training of what kind is being provided by which industries to what employees in what occupations for what purposes?
- o What are the demographics of training and what are its effects on their occupational careers? How well is the training system, as it is currently structured, working as a career development and credentialing system for persons in different occupations? Does access to training differ significantly by race, sex, age, or other social economic factors?
- o What are the major influences on needs for training at the local level, and how do needs for training interact with the dynamics of local economies? How are technological change and the evolving international marketplace affecting needs for training and local economies? What are the needs for information about labor markets and training at different levels of the training system and the economy?

Methods

NAVE will commission a series of papers synthesizing existing research on these issues and applying the results to vocational education.

Appendix
SYNOPSIS OF MAJOR PROVISIONS OF THE CARL D. PERKINS VOCATIONAL EDUCATION ACT
(P.L. 98-524)

The Carl D. Perkins Vocational Education Act was signed into law on October 19, 1984. The legislation reauthorizes federal vocational education programs through FY 1989, substantially modifying the programs previously authorized under the Vocational Education Act of 1963, as amended.

Purposes

The principal purposes of the act are to--

- Serve special-need populations by providing improved access, more services, and better-quality services for persons with special needs, including the handicapped, the disadvantaged, adults needing training or retraining, men and women entering nontraditional occupations, single parents or homemakers, individuals with limited English proficiency, and inmates in correctional institutions.

- Improve the quality of vocational education by assisting the states to expand, improve, modernize, and develop quality vocational education programs.

- Contribute to economic development by improving the quality of the work force, raising productivity, and promoting economic growth, especially in economically depressed and high-unemployment areas.

Appropriations

The act authorizes specific sums for FY 1985 and "such sums as may be necessary" for FY 1986 through FY 1989. The actual amounts appropriated for FY 1987 are:

Basic state grant programs (Title IIA, B)	$809.5 million
Community-based programs (Title IIIA)	6.0
Consumer and Homemaker Education (Title IIIB) ..	31.6
Indian and Hawaiian Natives programs	12.5
National programs (research, etc.) (Title IV) ..	11.1
Bilingual vocational training (Title IVE)	3.7
State councils	7.5
Total	$881.9 million

TITLE I--VOCATIONAL EDUCATION ASSISTANCE TO THE STATES

Part A: Allotment and Allocation:

Prescribes a formula for apportioning federal vocational education aid among states, mainly on the basis of state populations in the age brackets 15-19, 20-24, and 25-65 but with an adjustment factor that favors states with low per-capita incomes; imposes certain constraints on state allotments, including a hold-harmless provision based on the FY 1984 allocations.

Allows each state to retain 7 percent of its allotment (in some cases, slightly more) for state-level administration; divides the remainder of state aid funds into a 57-percent share for target-group programs under Title IIA and a 43-percent share for program improvement, innovation, and expansion under Title IIB.

Reserves minor fractions of appropriated funds for national programs under Title IV and for special Indian and Hawaiian Natives programs.

Part B: State Organization and Planning Responsibilities

Establishes requirements for state administration of vocational education:

- Requires each state to establish a state board of vocational education as the sole state agency responsible for administering the state vocational education program; specifies responsibilities of the board.

- Requires each state to assign one full-time individual and to expend at least $60,000 to administer vocational programs for single parents and homemakers and a program to eliminate sex bias and stereotyping.

- Requires each state to establish a state council on vocational education to advise the state board and to assess vocational education programs.

Establishes requirements for local applications for funds.

- Requires each state to produce a state plan and to update it at specified intervals;

- Requires that the plan reflect assessments of occupational needs, needs of students, the quality of vocational programs, and the capacity of institutions to deliver needed services; requires that it specify planned uses and criteria for distributing federal funds.

- Requires states to offer "assurances" in their state plans that they will--

- distribute to local grantees at least 80 percent of federal aid, including 100 percent of aid for the handicapped and disadvantaged,

- allocate more federal funds to areas that are economically depressed or have high rates of unemployment,

- evaluate the programs of at least 20 percent of aid recipients each year,

- maintain outlays for guidance and counseling at least at FY 1984 levels,

- use federal funds so as to supplement, not supplant state and local funds that would otherwise be available for uses specified in the plan.

- establishes procedures for plan approval.

TITLE II--BASIC STATE GRANTS FOR VOCATIONAL EDUCATION

Part A--Vocational Education Opportunities:

Divides the 57 percent of grant funds available for target-group programs into shares for six specific target groups, as follows:

Handicapped individuals	10 percent
Disadvantaged individuals	22 percent
Adults in need of training or retraining	12 percent
Single parents or homemakers	8.5 percent
Participants in programs to eliminate sex bias and stereotyping	3.5 percent
Criminal offenders in correctional institutions	1 percent

Specifies uses of funds earmarked for the handicapped and disadvantaged:

o Stipulates that such funds shall be used only to pay the federal share (up to 50 percent) of the costs of supplemental resources or services for handicapped or disadvantaged vocational students; provides that, in the case of separate programs for such students, federal aid may be used only to pay the federal share of costs in excess of per-pupil expenditures for regular students in comparable vocational programs (i.e., limits use of federal aid to paying excess costs and requires 50-50 state-local matching).

o Permits states to use funds to promote equal access for the disadvantaged, to apply modern technology in vocational courses, and to purchase modern machinery and equipment for

schools in which at least 75 percent of the students are disadvantaged.

Specifies permitted uses of funds for adults, including support of programs administered under the Job Training Partnership Act (JTPA); specifies permitted uses of funds for single parents and homemakers and for participants in programs to eliminate sex bias and stereotyping.

Permits states to use funds for basic skills instruction and to provide services through contracts with private training institutions and employers; endorses work-site training programs and placement activities.

Establishes procedures for intrastate distribution of funds to eligible recipients (local education agencies and postsecondary institutions):

- Specifies formulas for distributing federal aid for the handicapped and disadvantaged: one-half of funds for each group to be distributed in proportion to numbers of economically disadvantaged students enrolled; the other half in proportion to numbers of handicapped or disadvantaged students, as the case may be, served in vocational education in the previous year.

- Reserves for limited-English proficient (LEP) students a percentage of allotments for the disadvantaged at least equal to the percentage that LEP students make up of disadvantaged enrollees.

- Allows states to establish their own methods and criteria for distributing funds earmarked for the other four target groups.

Establishes equal access provisions and service mandates for the handicapped and disadvantaged:

- Requires states to ensure equal access for the handicapped and disadvantaged in recruitment, enrollment, and placement activities and to the full range of vocational programs; requires services to be provided for handicapped students in the least restrictive environment and subject to individualized education plans (IEPs).

- Requires each LEA to provide information on vocational education opportunities to handicapped and disadvantaged students and their parents at least one year before the time to enroll in such programs.

- Stipulates that each handicapped or disadvantaged student who enrolls in a vocational education program shall receive an assessment of interests, abilities, and special needs; special services, including modification of instruction, to

meet the identified special needs; and guidance and counseling, including employment counseling.

Part B--Vocational Education Program Improvement, Innovation, and Expansion

Enumerates 25 categories of purposes, activities, or items of expenditure (many redundant or overlapping) for which Title IIB funds may be used, including improvement and expansion of programs in general, programs for special-need populations, and other specified types of programs or services; introduction of new and innovative programs, including new programs of specified types; acquisition of equipment, renovation of facilities, and construction of facilities at area vocational schools; provision of certain ancillary services, such as stipends, day care services, and placement services; and curriculum development and teacher training.

Allows each state to decide how Title IIB funds shall be used and how they shall be distributed to eligible recipients (and, under certain conditions, to community-based organizations).*

Specifies a 50-percent federal share of the costs (i.e., 50-50 matching of federal aid spent under this part).

TITLE III--SPECIAL PROGRAMS

Note: Title III authorizes five special programs under parts A-E, but only the programs under parts A and B have received appropriations as of FY 1987

Part A--Community-Based Organization Programs

Authorizes community-based organizations to operate programs in cooperation with eligible recipients; specifies permitted uses of funds under such programs.

Part B--Consumer and Homemaker Education

Authorizes grants to states for instruction in homemaking, food and nutrition, consumer education, family living, child development, etc.; specifies required, permitted, and encouraged types of programs and activities.

Requires that not less than one-third of funds be expended in economically depressed or high-unemployment areas.

Special programs for which there have been no appropriations through FY1987:

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*In accordance with expressed Congressional intent that federal aid should not be used to maintain ongoing programs, the Department of Education distinguishes in the program regulations between (a) activities that are inherently program improvement activities and may be supported indefinitely with Title IIB funds and (b) activities that are new, improved, expanded, etc., and may be supported with Title IIB funds for up to three years.

Part C--Adult Training, Retraining, and Employment Development

Part D--Comprehensive Career Guidance and Counseling Programs

Part E--Industry-Education Partnership for Training in High Technology Occupations

TITLE IV--NATIONAL PROGRAMS

Part A--Research

Authorizes a program of research on vocational education.

Mandates the National Assessment of Vocational Education (NAVE).

Provides for the continuing operation of a National Center for Research in Vocational Education (NCRVE).

Part B--Demonstration Programs

Authorizes funding of demonstrations of exemplary practices and various kinds of model programs.

Part C--Vocational Education and Occupational Information Data Systems

Directs the Department of Education to develop vocational education data; establishes a National Occupational Information Coordinating Committee (NOICC) and authorizes it to provide funds to state committees to develop and coordinate occupational information systems.

Part D--National Council on Vocational Education

Establishes a national council; directs it to advise the President, Congress, and the Secretary on implementation and effectiveness of the Act and the JTPA program and on other vocational education issues.

Part E--Bilingual Vocational Training

Authorizes a limited program of grants and contracts for bilingual vocational training of persons who have left school or have already entered the labor market; specifies permitted types of programs and application requirements.

TITLE V--GENERAL PROVISIONS

Part A--Federal Administrative Provisions:

Specifies requirements for state-local matching of federal aid:

- Sets federal shares of cost of each program: 50 percent of costs of services for the handicapped, the disadvantaged, and adults; 50 percent of costs of improvement, innovation, and expansion programs and state and local administration; 100 percent of costs of services for other target groups and of costs of other specified activities.

- Stipulates that matching contributions are to be equitably provided from state and local sources, but that states shall provide matching funds if recipients are unable to do so; allows matching of aid for the disadvantaged in kind if recipients cannot match in cash.

Requires states to maintain their levels of aggregate or per-student expenditure for vocational education ("maintenance of effort").*

Provides for withholding of federal funds in the event of noncompliance with provisions of the Act and for judicial review of withholding actions.

Requires states to conduct audits at least every two years.

Part B--Definitions

Provides definitions of key terms in the Act, such as "eligible recipient," "disadvantaged," "handicapped," "economically depressed area," and "vocational education."

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*The Department of Education has interpreted this requirement as applying only to funds from "state sources" rather than to all state-local vocational education outlays.

UNITED STATES DEPARTMENT OF EDUCATION
WASHINGTON, D.C. 20202

February 11, 1988

Dear Colleague:

The first interim report of the National Assessment of Vocational Education is a progress report on the work being accomplished under the Congressional mandate in section 403 of the Perkins Act, (P.L. 98-524). The report has two parts. The first part discusses trends in vocational education and issues concerning the disadvantaged provisions in the Perkins Act. The second part profiles all of the research projects now in progress in each of five broad study areas of the National Assessment.

Chapter 1, "Participation in High School Vocational Education" describes a new and emerging portrait of vocational education enrollments derived from high school transcripts for a nationally representative sample of high school graduates. The report provides a detailed analysis of vocational enrollments, by subject and level, and a description of the students who participate in vocational education.

Chapter 2, "The Disadvantaged and Vocational Education" examines the problem defined in the Perkins Act: the need for greater access to high quality vocational education. A discussion of Perkins provisions together with preliminary information from case studies raises policy questions to be explored in future reports.

The purpose of this report is to further define the key issues facing vocational education and offer some basic data to describe the vocational education enterprise. No findings or recommendations of the National Assessment of Vocational Education are included. Findings and recommendations will be presented in the final report, due to Congress January 1989.

Additional copies of the report can be obtained by writing to: NAVE, Department of Education, FOB-6 Room 3141, 400 Maryland Avenue, S.W., Washington, D.C. 20202.

Sincerely,

John G. Wirt, Director
National Assessment of
Vocational Education

First Interim Report

NATIONAL ASSESSMENT OF VOCATIONAL EDUCATION

EXECUTIVE SUMMARY

Section 403 of the Carl D. Perkins Vocational Education Act directs the Department of Education to conduct a National Assessment of Vocational Education that "describes and evaluates:" (1) the participation of students in vocational education; (2) the educational and employment outcomes of such participation; and (3) the effects of federal support on both the expansion of access to and the improvement of programs at the state and local, and the secondary and postsecondary levels.

OVERVIEW

This first interim report from the National Assessment is a progress report that (1) presents initial information resulting from the research conducted to date and (2) further develops issues to be dealt with in the final report. The intent is to identify and shape issues for the discussion of federal policy on vocational education that lies ahead. A second interim report will be submitted in July 1988 and the final report is due in January 1989.

The report has two parts. Part I contains two substantive chapters reporting on results to date from the National Assessment. Chapter 1 discusses "Participation in High School Vocational Education." Chapter 2 highlights "Disadvantaged Persons and Vocational Education Policy." Part II describes the research projects underway in the National Assessment. The five broad research areas outlined in the study plan are expanded into separate chapters.

The report was reviewed by an external Advisory Panel of distinguished vocational and non-vocational educators, public policy analysts, administrators, and research experts. The Advisory Panel will meet several times during the next 12 months to review work of the National Assessment.

Part I

ENROLLMENTS IN HIGH SCHOOL VOCATIONAL EDUCATION

A new portrait of student enrollment in secondary school vocational education is being developed by the National Assessment through the analysis of transcripts and other data. Development of the portrait required the creation of an improved taxonomy of high school courses. The Secondary School Course Taxonomy groups high school courses more accurately than in the past into a hierarchy of: four major areas of the secondary school

curriculum, subject areas within those major areas, fields, and course characteristics. The four major curriculum areas are academic, vocational, personal/other, and special education. The vocational curriculum is divided into three "subjects": consumer and homemaking education, general labor market participation, and specific labor market preparation.

Who Takes Vocational Education? Nearly all students take some vocational education before graduation from high school. Transcript data from the High School and Beyond Survey show that over 97 percent of all high school seniors who graduated in 1982 took at least one vocational course in their four years of study. Participation ranged from as little as a half credit (equivalent to a one-period, one semester course) to eight credits or more (or the equivalent of two courses meeting one period per day each for two years). The number of students in vocational courses was uniformly distributed from the low end to the high end of the range. In short, enrollment in vocational education among students is entirely a matter of degree, not an either-or proposition.

Our analyses of high school transcripts provide clear evidence that traditional methods of classifying students according to academic, general, or vocational tracks in the high school are highly inaccurate for predicting who takes vocational education and the amounts of vocational coursework they actually take. It is more accurate and informative to distinguish among students by their enrollment in vocational education and their plans after high school--their expectations for work and postsecondary education. The 1982 transcript data show that secondary vocational education attracts high- and low-ability, and college-and work-bound youth.

How Much Vocational Education is Taken? Vocational enrollments account for 20 percent of the courses taken by the average student who graduates from high school or almost 4-1/2 full-year, one-period courses. About two-thirds of the average student's curriculum is academic. Use of the Secondary School Course Taxonomy reveals that the average high school student earns 14.4 academic credits, 4.35 vocational credits, and 2.84 credits in the personal/other category by the time of graduation. Additional findings include:

- Differences among students in the amount of vocational education taken strongly reflect their post-high school plans. Work-bound students average 6.01 credits before graduation, those planning to attend a postsecondary vocational institution about 5.75 credits, and those planning to obtain some college 4.58 credits. Students planning to earn a baccalaureate or higher enroll at about half the level of students with no postsecondary plans, or about 3.20 credits.

- The amount of vocational coursework taken by students is more strongly related to their plans for postsecondary education than to their academic ability.

- Forty-five percent of all vocational credits earned by students are earned by students in the top half of the ability distribution.

- Despite the greater rate of enrollment in vocational education by non-college-bound students, college-bound students collectively account for nearly half of all vocational enrollments.

What Vocational Education is Taken? Courses offering specific labor market preparation, such as Agricultural Mechanics II or Introduction to Business, account for 63 percent of all the credits that students earn in vocational education. Contrary to popular stereotypes, high school vocational education does not consist primarily of courses in general labor market preparation, such as woodshop and industrial arts.

Vocational Education and the "New Basics". Students bound for work make significantly different tradeoffs in choosing between vocational and non-vocational subjects than do college-bound students.

Work-bound students make room in their schooling for additional vocational education mostly through taking more total credits than other students. College-bound students, on the other hand, cut back sharply on academic credits to take additional vocational courses. For example, work-bound students who take five additional credits of vocational education cut back in the "new basics" (English, social studies, mathematics, science, and foreign languages) by about two credits. College-bound students who take five additional credits reduce their academic enrollments by three and one half credits.

Trends of Enrollment. Preliminary evidence from various sources indicates several important trends in secondary school vocational education. First, enrollments appear to be declining, perhaps even faster than the general decline in the population of high-school-aged students. A study of New York State shows that enrollments in vocational education fell by 6.7 percent between 1982-1983 and 1985-1986. This compares to a statewide decline of 5.1 percent in secondary school enrollments. In New York, the declines have been concentrated in the area vocational schools and smaller school districts. A California study indicates decreases in offerings at comprehensive high schools of between 11 to 22 percent, depending on the vocational field, after adjusting for overall enrollment decline.

Such trends have been confirmed in several case studies conducted by the National Assessment. Transcript data currently being collected by the National Assessment for the high school class of 1987 will provide nationwide data on the extent to which vocational enrollments are shifting.

THE DISADVANTAGED AND VOCATIONAL EDUCATION

The Perkins Act targets disadvantaged students for the largest share of federal support--22 percent of the basic grant. The act extends and

strengthens provisions for the disadvantaged that have existed in federal legislation for nearly a quarter-century.

What is the Problem? The Perkins Act states that disadvantaged students need greater access to high quality vocational programs. Quality programs are programs that challenge students; that offer training for jobs likely to be available, are worth having (on the basis of compensation, status, likelihood of leading to a career, and other qualities), and might not be attainable without the training; or, that prepare students for more advanced postsecondary training.

There is limited information on the current access of disadvantaged persons to quality vocational training. Research of the National Assessment indicates that blacks and whites enroll in secondary vocational classes at about the same rates, as do students in all but the top ability group. But aggregate data may mask differences in the mix of courses taken or the ways in which instruction is delivered. At the postsecondary level, the least academically able students either do not attend or apppear to have restricted access to quality training. Obtaining solid evidence of the nature and extent of the problems faced by disadvantaged persons in vocational education is a priority of the National Assessment.

Provisions of the Perkins Act. To implement the act's provisions for the disadvantaged, states and localities must establish policies where the law is broad or ambiguous. Local officials have considerable discretion to decide which students should be served and what services they need. Districts and postsecondary institutions are free to concentrate federal resources on a few students or spread the funds among many students. They may spend the funds on a wide range of services, instructional activities, and equipment.

To implement the requirement that federally funded services for disadvantaged students be additional to those received by other students, the act specifies the services that may be provided in mainstreamed and separate settings. Critics have argued that the restrictions encourage separate vocational instruction for disadvantaged students because documenting additional service is easier. They may also encourage non-instructional services because it is easier to demonstrate that other students do not get a non-instructional service.

However, disadvantaged students in mainstreamed vocational education do not necessarily have greater access to high quality programs. Mainstreamed disadvantaged students may still be concentrated in particular institutions or classes in ways that separate them from other students. The range of course offerings available to them and the opportunities to participate in classes with non-disadvantaged students are thus constrained nonetheless.

The Perkins Act specifies a formula for the distribution of funds within states to ensure that set-aside resources go to school districts and postsecondary institutions with larger numbers of disadvantaged students. In implementing the formula, however, some states have divided the set-

aside funds in prearranged percentages among secondary and postsecondary sectors or in other ways and then applied the intrastate formula. The result may be disparities in per-student grants to districts and institutions within a state and substantial differences across the states.

The act specifies a set of services that districts and postsecondary institutions receiving federal funds should provide to all disadvantaged students enrolled in vocational education. The provision has two important aspects. One is that the services specified are, for the most part, ancillary to vocational instruction; for example, guidance and counseling, career development, assessments and transition support. The other is that, under some interpretations, the provision amounts to an entitlement for all disadvantaged students to receive the indicated services, irrespective of the availability of federal support.

An important question raised by the provision is the balance among types of services and more direct investment in the expansion or upgrading of vocational instruction that should be struck, to best expand the access of disadvantaged students to high quality vocational education programs. Assumptions about the mix of supplementary services, academic remediation, and effort to upgrade or expand quality programs will be carefully examined in the Assessment.

Implementation of the Provisions by States and Localities. The effectiveness of the act in providing high quality vocational education to disadvantaged persons ultimately depends upon the responses of state and local officials. Case study research completed so far provides some useful information.

In a majority of communities examined so far, separate vocational classes have not been established for disadvantaged students who need additional assistance and are supported in part by the act. This appears to be the case at both secondary and postsecondary levels. Where such classes do occur, they tend to be in special institutions or programs such as alternative secondary schools or special programs for dropouts.

As encouraged by the legislation, at the secondary level disadvantaged set-aside funds appear to be spent primarily for supplementary services of two types: the ancillary services described above and remedial instruction in basic skills. At the postsecondary level, the emphasis is largely on basic skills remediation.

In the case studies completed to date, set-aside funds are generally used to provide services to persons who are academically (as opposed to economically) disadvantaged. Such persons are identified either through formal criteria, such as scores on standardized tests, or informally through teachers' identification of students likely to benefit from some additional assistance. At the secondary level, many administrators have difficulty understanding how economic disadvantage without academic difficulties should qualify students for services. At the postsecondary level, the emphasis remains on academic disadvantage although some institutions did provide economic assistance.

Secondary school districts in at least two of the larger cities visited to date have had difficulty in spending funds to which they were entitled under the set-aside for the disadvantaged. In the first year or two of the Perkins Act, both districts returned a considerable portion of their allocation to the state. These districts cited difficulties in meeting the matching provisions for excess costs. Over time, however, the match-of-excess-cost provision has generated additional revenues and programs for the disadvantaged.

Part II

Research projects are underway in five major areas for the final report.

IMPLEMENTATION OF THE PERKINS ACT

The projects in the first area of "Implementation of the Perkins Act" are:

- Exploratory Case Studies: The Nine-State Study
- Survey of State Vocational Education Policy
- Survey of Local Practice and Policy
- Case Studies of Perkins Act Implementation in States and Localities
- Targeting of Federal Vocational Education Funds

ACCESS OF SPECIAL POPULATION TO VOCATIONAL EDUCATION

The projects in the second area of the "Access of Special Populations to Vocational Education" are:

- Trends in the Enrollment of Special Populations
- Vocational Education and Disadvantaged Persons
- Special Education Students and Vocational Education
- Women and Vocational Education
- Vocational Education for Adults with Limited Proficiency in English

STATUS OF VOCATIONAL EDUCATION IN SECONDARY SCHOOLS

The third area is on the "Status of Vocational Education in Secondary Schools" and the projects are:

- Secondary School Curriculum: Trends and Dimensions of Enrollment
- Effects of the Academic Reform Movement
- Alternative Goals for Vocational Education and Program Effectiveness
- Training-Related Job Placement

- o Productivity, Earnings, and Employment
- o Development of Basic Skills
- o Enhancing Academic Skills
- o Teacher Work Force

STATUS OF POSTSECONDARY VOCATIONAL EDUCATION

The fourth area is on the "Status of Vocational Education in Postsecondary Schools" and the projects are:

- o Postsecondary Enrollment Patterns
- o Postsecondary Training-Related Placement and Earnings
- o Comparison of Outstanding and Typical Postsecondary Institutions
- o Performance-Oriented Policies to Improve Postsecondary Vocational Education
- o Financing of Postsecondary Programs

SKILLS TRAINING AND THE ECONOMY

In the fifth area on "Skills Training and the Economy," a project will be conducted to investigate the needs for, and tradeoffs involved in, alternative policies of federal investment in skills training.

January 1988